

Study of Anxiety Due to Covid 19 Pandemic in Obstetric Patients - A Comparative Study

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Abstract

Objective: To evaluate the covid-19 pandemic related anxiety in obstetrics patients admitted in tertiary care centre in suspected covid wards by using WSAS and HAM-A scales.

Methods: A cross-sectional survey of women accessing maternity services was carried out at the local peak of the pandemic. Background data including relevant demographic details, pregnancy and mental health history, concerns, as well as helpful stress-reducing factors reported by women was collected. Depression and anxiety symptomatology was studied using the WSAS and HAM-A scales.

Results: The survey results revealed a high prevalence of anxiety and Depressive symptomatology (34.4 and 39.2% respectively), based on WSAS and HAM-A scales. These rates appeared much higher than the reported pre-pandemic prevalence and were not affected by occupation, previous mental health problems or pregnancy complications. Women's most commonly reported concerns as well as coping factors.

Conclusion: Marked increase in anxiety and depressive symptoms during the COVID-19 pandemic, among pregnant and puerperal individuals, who constitute a vulnerable group with respect to mental health morbidity.

Keywords: Mental Health; Pandemic; Perinatal; Pregnancy; Stress

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Introduction

Mental health concerns of people impacted by the coronavirus pandemic have not been adequately addressed. The objective of this study was to evaluate the properties of the Coronavirus related anxiety by using WSAS and HAM-A scales, which are a brief mental health screener to identify probable cases of

dysfunctional anxiety associated with the COVID-19 crisis.

On 31 December 2019, a novel viral pneumonia originating from Wuhan, China was announced to the World Health Organization. As of 23 March 2020, this novel coronavirus (COVID-19) quickly spread

across the globe, infecting more than 294,110 people in 187 countries and killing 12,944 individuals. Changes to daily life have been swift and unprecedented, as cases of the virus surge, the death toll escalates, and draconian measures to contain the spread of the disease increase across regions of the globe. Although there has been substantial attention to measures to identify people with the coronavirus infection, identifying the mental health care needs of people impacted by this pandemic have been relatively neglected [1-3].

This is surprising given that mass tragedies, particularly ones that involve infectious diseases, often trigger waves of heightened fear and anxiety that are known to cause massive disruptions to the behavior and psychological well-being of many in the population. For instance, in a recent, large survey of people highly susceptible to the coronavirus infection (i.e., Chinese medical workers), the prevalence rate of traumatic stress was at an alarming 73.4%, depression was at 50.7%, generalized anxiety was at 44.7%, and insomnia was at 36.1%. Although these findings are disturbing, they are not isolated, as research on the psychological impact of previous global disease outbreaks has demonstrated clear links between pandemic-related anxiety and elevated symptoms of stress, anxiety, contamination concerns, health anxiety, post-traumatic stress, and suicidality [4-6].

Therefore, the purpose of this study was to fill a void in the mental health response to this growing public health crisis by developing and evaluating a brief mental health screener that can be used to reliably identify probable cases of dysfunctional anxiety and symptom severity associated with the coronavirus [7].

Materials and Methods

Study Centre Sultania Zanana hospital, Gandhi Medical College, Bhopal.

Duration Of Study: Study will be conducted after approval of ethics committee for a period of 6 months.

Study Design: Prospective comparative study. After seeking authorization from Dean, GMC, Bhopal and Head of the department, SZH, Bhopal a prospective comparative study will be conducted.

Inclusion Criteria: All the consenting pregnant women admitted in the Department of Obstetrics & Gynaecology at Sultania Zanana Hospital, Bhopal in non-covid wards and covid suspected ward.

Exclusion Criteria: Antenatal women not giving consent. All non-pregnant women getting admitted in Sultania Zanana Hospital, Bhopal.

Sample Size: All obstetric patients getting admitted in non-covid and covid suspected wards consenting to participate in the study.

Procedure Planned: Pre-designed proforma of WSAS and HAM-AAs attached will be filled by the obstetric patients after informed consent.

Data Collection And Methods: Patients will be selected according to the inclusion and exclusion criteria. After taking informed consent and reassuring patients regarding the expertise and confidentiality all the patients will be studied in detail with reference to thyroid dysfunction amongst admitted women in pregnancy, fetomaternal outcome. Background information

Participants Will be asked to report their age, ethnicity, education, current residency, coronavirus diagnosis or suspicion criteria (as per ICMR guidelines), and history of anxiety. After taking consent from the participants a Detailed history will be taken and full clinical and general examination will be performed using a pre-designed proforma. For anxiety levels 2 pre-designed proformas

For Functional Impairment – WSAS (Work And Social Adjustment Scale): A WSAS

score above 20 appears to suggest moderately severe or worse psychopathology. Scores between 10 and 20 are associated with significant functional impairment but less severe clinical symptomatology. Scores below 10 appear to be associated with subclinical populations.

For Anxiety HAM-A (Hamilton Anxiety Rating Scale): will be filled by the groups non-covid and covid suspect. There after the anxiety levels will be compared between the groups. (non-covid and covid suspected)

Suspected Case: Cases having at least one of the epidemiological history features and two clinical features OR three clinical features of COVID-19. Epidemiological history:

14 days prior to the onset of symptoms:

- Travel history or residence in areas declared COVID-19 hotspots.
- Contact with COVID-19 cases.
- Exposure to patients with fever or respiratory symptoms in COVID-19 hotspots.

Observation Chart

Table 1: WSAS and HAM-A anxiety scoring system in pregnant population

Score	Severity
0–5	None
6–10	Mild
11–15	Moderate
16–21	Severe

Table 2: Demographic characteristic of the study group

	Total (N=100)	Non-Covid-19 (N=50)	Covid-19 (N=50)	Chi ²	p Value Non-Covid-19 vs. Covid - 19
Material age (years)	33.2 (+4.8)	33.2 (+4.8)	32.9 (+4.7)	N/A	0.356
Mean gestational age (weeks)	32.2 (+7.8)	32.2 (+7.8)	32.7 (+7.6)	N/A	0.422
Primiparity	46%	49%	32%	8.390	0.004
Parity (mean)	2.2 (+1.3)	2.1 (+1.2)	2.4 (+1.4)	N/A	0.02
Place of residence					
Rural area	15%	13%	23%		

- Evidence of clustering.

Clinical features

- Fever with or without respiratory symptoms
- Initially, total WBC count can be normal or decreased, or lymphocyte count decreased
- Imaging characteristics of COVID-19 as small patchy shadows and interstitial changes, especially in lateral lung
- Ground glass opacities and infiltrates were seen subsequently in bilateral lungs
- Lung consolidation in severe cases.

Asymptomatic infected people and patients in incubation period may not meet the diagnostic criteria for suspected cases but if they have possible epidemiological history, all dead bodies without reliable clinical/epidemiological history and all unidentified dead bodies should be treated as suspected COVID 19 deaths. Cases with negative swab results also should be treated as suspected COVID-19 deaths as false negative result is not uncommon.

Small centre < 30,000 habitants	9%	8%	13%	13.013	0.011
Medium centre 30,000 - 100000 habitants	9%	8%	11%		
Large centre 100000 - 500000 habitants	6%	6%	7%		
Very large centre > 500000 habitants	61%	65%	46%		
Education					
Elementary	1%	1%	1%	7.434	0.114
Vocational	4%	4%	2%		
High school	15%	13%	20%		
Higher (BA)	15%	13%	21%		
Higher (Masters)	66%	68%	56%		
Financial Situation					
Easily coping	25%	24%	27%	0.557	0.906
Sufficiently coping	71%	72%	69%		
Finding difficulty	3%	3%	3%		
Finding substantial difficulty	1%	1%	1%		
Household Description					
Living alone	2%	1%	2%	17.343	0.027
Only partner	39%	43%	23%		
Partner and children	47%	44%	56%		
Only children	1%	1%	2%		
Partner, parents or in-laws	6%	5%	9%		
Partner, children, parents or in-laws	5%	5%	7%		
Only parents / in-laws / other people	0%	0%	1%		
Profession					
White - collar worker (office, administrative)	43%	43%	40%	6.856	0.231
White - collar worker (other)	32%	34%	26%		
Self - employed / freelancer	5%	5%	7%		
Blue - collar worker	8%	7%	11%		
Taking care of household	6%	5%	7%		
Unemployed	6%	5%	10%		
Current Job Status					
Home office	17%	18%	11%	3.963	0.265
Going out of work	13%	12%	17%		
Unemployed	16%	15%	19%		
Temporarily on sick leave	54%	54%	51%		
Previous anxiety or depression diagnosis	12%	13%	6%	4.289	0.038

Table 3: Daily life measures during the covid-19 pandemic

Characteristics	Total (N=100)	Non Covid-19 (N=50)	Covid - 19 (N=50)	Chi ²	p Value Non-Covid-19 vs. Covid - 19
Social distancing time spent with					
Alone	0%	0%	0%	12.867	0.012
Only partner	33%	36%	23%		
Partner and children	40%	37%	52%		
Only children	1%	0%	2%		
Partner and / or children, parents or in-laws	26%	26%	22%		
Only Parents / in-laws	1%	1%	0%		
Daily number of times left home					
0-1	61%	63%	54%		
2	23%	22%	26%		
>2	16%	15%	20%		
COVID - cases within close family and friends (Yes answer)	63%	61%	70%	2.634	0.267
Social media usage during pandemic					
Less often	10%	7%	21%	N/A	N/A
More often	35%	38%	26%		
Similar	55%	55%	53%		
Have you been avoiding social contact out of concern of your unborn baby? (Yes answer)	74%	75%	71%	0.915	0.632

Table 4: Pregnancy-related questions

Characteristics	Total (N=100)	Non Covid-19 (N=50)	Covid - 19 (N=50)	Chi ²	p Value Non-Covid-19 vs. Covid - 19
Do you feel more prone to COVID related complications while pregnant? (Yes answer)	59%	56%	63%	0.973	0.324
Do you regret being pregnant during the pandemics? (Yes answer)	29%	27%	39%	5.190	0.022
My biggest pandemic - related concern during pregnancy is : (multiple choice)					
No concern	36%	12%	6%	N/A	N/A
Fetal well being	66%	63%	77%		
Other children will being	13%	12%	17%		
Self - well being	9%	7%	16%		
Financial situation	11%	11%	10%		

Family members well being	28%	28%	31%		
Different option	7%	7%	6%		
My biggest fear related to healthcare service in the pandemics is (multiple choice)					
Limited healthcare access	36%	33%	44%	N/A	N/A
Labor and delivery without a companion	40%	38%	44%		
Lack of family support due to hospital no-visit policy	46%	46%	48%		
Virus transmission in the hospital / healthcare center	2%	25%	17%		
Have you been avoiding social contact out of concern of your unborn baby? (Yes answer)	74%	75%	71%	0.915	0.632

Table 5: WSAS and HAM-A score distribution

Anxiety	Total	Non-Covid	Covid	Chi ²	p Value
None	62%	65%	51%	8.838	0.032
Mild	29%	28%	33%		
Moderate	6%	5%	11%		
Severe	3%	2%	4%		

Table 6: Logistic regression analysis of factors influencing the severity of anxiety levels

Factor	aOR	95% CI	Chi ²	Pr > ChiSq	Wald Chi ²	Pr > ChiSq
Unemployment	2.2	1.1-4.2	5.3	0.0213	5.2	0.02
Previous anxiety or depression diagnosis	3.4	1.8-6.4	10.5	0.0012	14.4	0.0001
Increased social medial usage	2.4	1.5-3.7	9.9	0.0017	14.6	0.0001
Social contact avoidance	3.2	1.9-5.4	19.9	<0.0001	17.7	<0.0001
COVID-19 infection in pregnancy	2.4	1.4-4.0	12.6	0.0004	11.5	0.0007

Results

During the three-month period, 121 eligible women were invited to participate in the study: only 21 refused, with 100 women completing the questionnaires. Maternal sociodemographic characteristics, perinatal data and the overall results of the BAI score are shown in . Most women were non-white and living with a partner, and the majority reported educational level up to high school. BAI scores in late pregnancy indicate that 13.9% presented moderate and 9.6% severe anxiety. There were 3.2% of participants diagnosed with COVID-

19 previously during pregnancy and 5.2% with a family member diagnosed with COVID-19.

Statistical Analysis

Data were analyzed using the MedCalc[®] Statistical Software version 19.5.3 (MedCalc Software Ltd., Ostend, Belgium; 2020). Descriptive statistics are presented as mean and standard deviation (SD), median (95% CI), or frequency and percentage (%). The associations of categorical variables with binary outcomes were analyzed using Fisher's exact test or the chi-square test when

appropriate. The Mann-Whitney U tests were applied to continuous variables with non-parametric distribution. The analyses were adjusted for potential confounders such as maternal age, nulliparity, ethnicity, educational level, marital status (yes/no), religious belief (yes/no), smoking (yes/no), alcohol consumption (yes/no) and geographical location. The logistic regression model was used to investigate which variables were independently associated with increased anxiety. Statistical significance was set at $p < 0.05$.

Discussion

It is important for women to have adequate support, which includes health care workers and companions during labor and childbirth. It is up to midwives and obstetricians to help women regain self confidence and trust in caregivers. Educational programs should be designed to address pregnant women's perceptions of the COVID-19 pandemic in order to improve their mental well-being.

Study by Ayaz R *et al* aimed to compare the level of anxiety and depression in the same pregnant women before and during the COVID-19 pandemic. The pregnant women continuing pregnancy who participated in the first study which was undertaken to clarify the factors associated with mental health of pregnant women before the COVID-19 pandemic, were included for the current study during the outbreak. This study indicated that COVID-19 outbreak affects the mental health of pregnant women negatively which leads to adverse birth outcomes. The level of anxiety and depression symptoms of pregnant women during the COVID-19 infection significantly increased. Healthcare professionals should establish comprehensive treatment plans for pregnant women who are highly vulnerable population to prevent mental trauma during the infectious disease outbreaks [8].

Smith RB *et al* did a randomized controlled trial to assess the effect of a consumer-based mobile meditation application (app) on

wellness in outpatient obstetric and gynecology patients during the coronavirus disease 2019 (COVID-19) pandemic. Women were randomly assigned to the intervention group, who was prescribed a mobile meditation app for 30 days, or the control group, which received standard care. The primary outcome was self-reported perceived stress. Analysis was by intention-to-treat. Self-reported depression and anxiety were significantly less in the intervention group at days 14 and 30. More than 80% of those in the intervention group reported high satisfaction with the meditation app, and 93% reported that mindfulness meditation improved their stress. Outpatient obstetric and gynecology patients who used the prescribed consumer-based mobile meditation app during the COVID-19 pandemic had significant reductions in perceived stress, depression, anxiety, and sleep disturbance compared with standard care [9,10].

Farrell T *et al* studied the impact of the COVID-19 pandemic on the perinatal mental health of women. This study was undertaken with the aim of studying the impact of the COVID-19 pandemic and related restrictions on perinatal mental health among women in Qatar. Depression and anxiety symptomatology was studied using the Patient Health Questionnaire Anxiety-Depression Scale (PHQ-ADS). Women's most commonly reported concerns as well as coping factors are discussed. Results indicate a marked increase in anxiety and depressive symptoms during the COVID-19 pandemic, among pregnant and puerperal individuals, who constitute a vulnerable group with respect to mental health morbidity [11].

Psychiatric morbidity is the most common childbirth complication with 1 in 5 women experiencing a perinatal mood or anxiety disorder. The cost of this psychiatric morbidity is pervasive, contributing to devastating maternal health, child developmental, and economic consequences. Raiff EM *et al* studied the coronavirus disease 2019 (COVID-

19) pandemic, and associated changes to perinatal experiences, resulted in profound psychological reactions including increased anxiety, depression, stress disorders, and sleep disturbance, further impacting obstetric patients. Providers' mental health has been challenged by moral injury and shared trauma. This article reviews mental health outcomes in regard to the COVID-19 pandemic for obstetric patients and their providers [12].

Nanjundaswamy MH *et al* did a survey among obstetricians on COVID-19-related anxiety and concerns expressed by pregnant and postpartum women. Similar cross-sectional survey was done by Ng QJ *et al* on perception and feelings of antenatal women during COVID-19 pandemic. These papers from India describes anxieties that pregnant and postpartum women reported to obstetricians during the COVID-19 pandemic. Of the 118 obstetricians who responded to an online survey, most had been contacted for concerns about hospital visits (72.65%), methods of protection (60.17%), the safety of the infant (52.14%), anxieties related to social media messages (40.68%) and contracting the infection (39.83%). Obstetricians felt the need for resources such as videos, websites and counselling skills to handle COVID-related anxiety among perinatal women [13].

Schmitt N did a scoping review on effects of the Covid-19 pandemic on maternity staff in 2020. This scoping review gives a comprehensive overview of the effects the Covid-19 pandemic had on maternity staff. Structural challenges (the first main topic) were divided into five subtopics: staff shortages and restructuring; personal protective equipment and tests; switching to virtual communication; handling women with a positive SARS-CoV-2 infection; and excluding accompanying persons. The pandemic also strongly affected the staff's mental health. Several studies indicated increased depression, anxiety, stress levels, and risk of post-traumatic stress symptoms, although the crisis also generated strong

occupational solidarity. Care for pregnant, birthing, and breast-feeding women cannot be interrupted, even during a pandemic crisis that requires social distancing. Maternity staff sometimes had to abandon normal standards of obstetric care and were confronted with enormous challenges and structural adjustments that did not leave them unscathed: their mental health suffered considerably. Researchers should study maternity staff's experiences during the pandemic to prepare recommendations that will protect staff during future epidemics [14].

Nomura R studied the impact of the COVID-19 pandemic on maternal anxiety in Brazil.

This was a national multicenter cross-sectional study performed in 10 different public university hospitals in Brazil. The inclusion criteria were: maternal age more than 18 years; gestational age more than 36 weeks at childbirth; single alive newborn without malformations; and absence of mental disorders. Authors applied a structured questionnaire to explore the knowledge and concerns about COVID-19. Maternal anxiety was assessed using the Beck Anxiety Inventory (BAI). Moderate or severe maternal anxiety was independently associated with the fear of being unaccompanied. Conclusion was that COVID-19 pandemic has a significant impact on maternal anxiety [15].

Mappa I *et al* did a prospective observational study on effects of coronavirus 19 pandemic on maternal anxiety during pregnancy. The aim of this study was to evaluate the psychological impact of COVID-19 pandemic on pregnant women in Italy. COVID-19 pandemic induces a doubling of the number of women who reached abnormal level of anxiety. These findings validate the role of the remote use of questionnaire for identifying women at higher risk of anxiety disorders allowing the activation of support procedures. Another study by Mappa I *et al* whose objective was to evaluate the propensity of a population of Italian women to receive the vaccine and its

psychological impact. The majority of pregnant women considered have a positive attitude to SARS-CoV-2 vaccine. Vaccine campaign seems to increase the maternal level of anxiety and this increase is more marked with a negative attitude toward the vaccine [16,17].

Ravaldi C *et al* batted for pregnant women had their concerns and birth expectations during the COVID-19 pandemic in Italy. The aim was to explore the psychological impact of the COVID-19 pandemic on Italian pregnant women, especially regarding concerns and birth expectations. Across the country, women were concerned about COVID-19 and a history of psychological disorders was significantly associated with higher concerns ($p < 0.05$). A previous pregnancy loss did not influence women's concerns. Women's expectations and concerns regarding childbirth changed significantly as a result of the COVID-19 pandemic in Italy. Women with a history of psychological disorders need particular attention as they seem to experience higher levels of concern [18].

Durankuş F did a preliminary study on effects of the COVID-19 pandemic on anxiety and depressive symptoms in pregnant women. This study illustrated the effects of the COVID-19 pandemic on the depression and anxiety levels of pregnant women. Our results point to an urgent need to provide psychosocial support to this population during the crisis. Otherwise, adverse events may occur during pregnancy and thus affect both mother and fetus [19].

Taubman–Ben-Ari O *et al* studied distress and anxiety associated with COVID-19 among Jewish and Arab pregnant women in Israel. In this study, authors sought to explore the psychological distress and COVID-19-related anxiety of pregnant women during the crisis. Although COVID-19-related anxieties were shared by pregnant women characterised by diverse sociodemographic variables, with very small nuances, Arab women were more anxious about each of the issues than Jewish women. Findings highlight the importance of

assessing anxiety and distress in pregnant women during the COVID-19 pandemic, as well as the need to be attentive to the double stress of pregnant women in times of crisis and to the potential vulnerability of subgroups, such as cultural minorities [20].

In this study, the models were constructed with maternal anxiety categorized as minimal or mild versus moderate or severe and also not severe versus severe because this level of anxiety was considered relevant for the population and the proposed model was intended to enable the evaluation of factors associated with increased anxiety. The relationship between severe anxiety and women's educational level possibly indicates the influence of social inequalities on access to information and perception of severity.

Conclusion

Many questions remain unanswered regarding the ongoing pandemic and a scenario of uncertainty continues. Highlighting mental health problems, especially anxiety among the general population and among pregnant women, is of paramount importance during public health emergencies. Our findings show that the impact of COVID-19 has been significant on maternal anxiety, especially with concerns about limitations for a companion during childbirth and breastfeeding safety. Lack of a partner, high educational level, consumption of alcohol and a family member with COVID-19 increased the risk for higher levels of anxiety. As India was registering a new increase in COVID-19 cases, we urged authorities to prioritize women's health and consider immediate interventions in order to provide recommendations to reduce the impacts of the pandemic on mental health.

What this study add to existing knowledge

There is huge importance of assessing anxiety and distress in pregnant women during the COVID-19 pandemic, as well as the need to be attentive to the double stress of pregnant women in times of crisis and to the potential

vulnerability of subgroups, such as cultural minorities.

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