

Impact of COVID-19 on Mental Health of Pregnant Women Attending Tertiary Care Hospital

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Abstract

Objective: To determine the frequency of psychological symptoms depression, anxiety, stress and insomnia and perceptions of transmission to baby in pregnant patients during the COVID-19 pandemic.

Methods: Pregnant women attending antenatal clinic at department of Obstetrics and Gynecology, Services hospital Lahore were recruited. Data was collected through a questionnaire which was filled by a doctor after face to face interview of the patient. Comparison of demographic data and psychological variables were noted between insomnia and non-insomnia groups.

Results: Out of 310 total pregnant women, 184 (61.32%) had depression, 228(76%) anxiety and 88(29.3%) had stress with insomnia in 223(74.33%) patients. 273(88.06%) participants had perception of transmission of disease to babies and 214(69.03%) expected bad outcome for newborn. Symptoms of depression (83.86% vs 8.05) anxiety (95.62% vs 28.73%) and stress (53.5% vs 1.14%) were seen more in insomnia group($p<0.05$). Illiterate and poor socioeconomic status women were more prone to insomnia in this pandemic($p<0.05$)

Conclusion: Pregnant women have psychological stress and false perception of vertical transmission and adverse fetal outcome during the COVID-19 pandemic. Adequate counselling sessions are needed to eliminate these false perceptions and relieve psychological stress.

Keywords: Pregnancy, COVID-19, Mental Health

Introduction

The COVID-19 pandemic is caused by severe acute respiratory syndrome corona virus. This disease originally started in China's Hubei province in December 2019 and has affected 213 countries and was declared a pandemic in March 2020.¹ It has debilitated the world socially and economically leaving deep scars. The situation is worse in developing countries who have meagre resources to tackle devastation. This pandemic has caused significant mental stress to public at large and health care workers in particular.^{2,3} Although government has done efforts to improve public awareness about

preventive strategies but prolonged lockdown, social media constantly reporting death has been proved to be counterproductive.

Pregnancy is actually a state of altered immunity to allow growth of the fetus. The biological adaptive changes during pregnancy make women more vulnerable to this disease.⁴ Stress and anxiety during pregnancy is a common phenomenon related to perinatal outcome. It is estimated that 10-16% of pregnant women suffer from mental problems during pregnancy and post-partum period.⁵ Prenatal maternal distress has negative impact on course of pregnancy, psych emotional and cognitive development of baby.⁶ Corona pandemic is expected to cause significant mental stress to pregnant women since a lot of inadequate information and conspiracy theories such as administration of poisonous injections are circulating on social media. This, coupled with restricted access to mental health services, social distancing, long stay at home, absence of emotional support and conflicting reports about disease transmission to fetus have aggravated the situation.

Pakistan is fifth most populous country in the world

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with significant pregnant population. Two studies have been published from Pakistan to evaluate mental distress and perceptions regarding pandemic in pregnancy showing different level of stress and perception of transmission to baby.^{7,8} We planned this study to determine the frequency of psychological distress like insomnia, depression, anxiety and stress in pregnant patients so that proper counselling could be offered to these patients.

Methods

This cross-sectional survey was conducted at Obstetrics department of Services Institute of Medical Sciences, Services hospital Lahore. It is a public sector tertiary care hospital. Ethical approval was taken from institutional review board. A sample size of 300 women was selected by random convenience sampling. The pregnant women attending the antenatal clinic or in postnatal ward within 24 hours after delivery were invited to take part in study. Agreeing participants were explained about the research and their verbal consent was taken. A questionnaire was then filled by a doctor after obtaining information from patients through a face to face interview. The questionnaire required demographic details of participants to be collected such as age, gestational age, socio-economic status, educational level and living status. Patients with previous history of psychiatric illness and ones with intrauterine demise were excluded from study.

Mental disorders such as depression, anxiety and stress also have an impact on sleep pattern. Two groups of participants were defined according to insomnia severity index as insomnia group (total score ≥ 8) and non-insomnia group (total score < 8). Each item in this index was rated on 0-4 scale and total score ranged from 0-28. The insomnia severity index was used to measure the severity of insomnia. Each item was rated on 0-4 scale and the total score ranged from 0-28. High score suggested severity of insomnia symptoms. A total score of ≥ 8 was considered as having symptoms of insomnia

Depression, anxiety and stress scores were calculated by DASS-21 scoring scale⁹. Each item was rated from 0-3 and mild, moderate and severe categories were defined. Depression symptoms scoring was done as minimal/ none (0-9), mild (10-13), moderate (11-20),

severe (21-27) and extremely severe as 21+. Anxiety was scored as minimal/ none (0-7), mild (8-9), moderate (10-14), severe (15-19) and extremely severe as 20+. Stress scoring was minimal/ none (0-14), mild (15-18), moderate (19-25), severe (26-33) and extremely severe as 34+.

Statistical analysis was performed using SPSS 23. Descriptive statistical analysis was performed. Comparison of demographic data and other psychological variables of depression, anxiety and stress were done between insomnia and non-insomnia group. Chi square was used and p-value of < 0.05 was considered statistically significant.

Results

A total of 310 pregnant women participated in this survey. Symptoms of depression were found in 184 (64.33%), anxiety in 228 (76%), stress in 88 (29.3%) and insomnia in 223 (74.3%) patients.

Table-1 is showing comparison of demographic features of insomnia and non-insomnia group. It indicates that individuals of insomnia group were mostly in range of 18-25 years age (53.81%). A comparison between insomnia and non-insomnia group indicated that individuals with lower socio-economic status had statistically significant insomnia 119 (53.36%) versus 33 (37.93%) in non-insomnia group ($p < 0.05$). Similarly, illiterate women had higher rate of insomnia 112 (50.2%) versus 36 (41.3%) in non-insomnia group. Insomnia was most pronounced in first pregnancy, third trimester of pregnancy and those living in joint family.

Table-II is showing the correlation between insomnia and other psychiatric disorders. Depression, anxiety and stress was significantly associated with insomnia ($p < 0.001$)

Table-III shows the concerns of patients about the spread of disease to baby. 273 (88.06%) of women perceived that COVID-19 can be transmitted to baby in intrauterine life and 214 (69.03%) thought that it can either cause intrauterine demise or infection in new born baby if mother had COVID-19 infection.

Discussion

Pregnancy is a stressful condition for women due to

hormonal and physical changes. Anxiety and depression is a commonly reported symptom in pregnant patients due to worries about perinatal outcome. Generalized anxiety disorders are estimated to be present amongst 8.5% of pregnant population.¹⁰ This study revealed that anxiety and depression were pro-

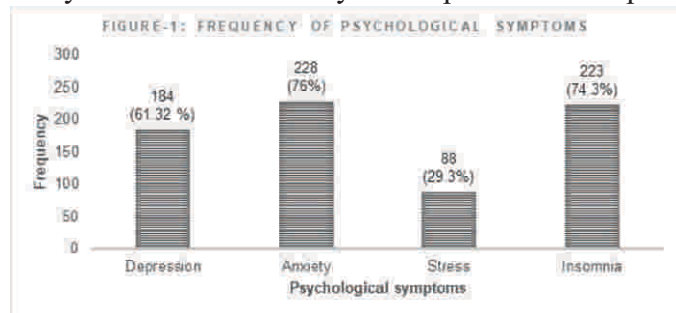


Table 1: Comparison of Demographic Features between Insomnia and Non-Insomnia Group

Demographic data		Insomnia N=223	Non Insomnia N=87	P value
Age	18-25year	120 (53.81%)	40 (45.977%)	0.601
	26-30year	82 (36.77%)	36(41.37%)	
	31-35year	14(6.27%)	8 (9.19%)	
	35 above	7 (3.13%)	3 (3.44%)	
Educa- tion	Illiterate	112 (50.2%)	36 (41.37%)	0.08
	elementary	77(34.52%)	38 (43.67%)	
	Matric/FA	23 (10.3%)	7 (8.04%)	
	Graduation/ above	11(4.93%)	6(6.89%)	
Socio- economic status	Poor	119 (53.36%)	33 (37.93%)	0.05
	Middle	98 (43.94%)	51 (58.62%)	
	High	6(2.69%)	3 (3.44%)	
Gesta- tional age	1 st trimester	37 (16.59%)	9 (10.34%)	0.43
	2 nd trimester	73 (32.7%)	42 (48.27%)	
	3 rd trimester	96 (43.04%)	31 (35.63%)	
	postpartum	17(7.62%)	5 (5.74%)	
Living status	Nuclear	58(26.01)	26 (29.88%)	0.49
	Joint	165(73.99%)	61(70.11%)	
Parity	Primigravid	102(45.73%)	32(36.78%)	0.153
	Gravida 2-4	71(31.84%)	35(40.02%)	
	> G4	50(22.42%)	20(22.98%)	

Table 2: Correlation between Insomnia and Other Psychiatric Disorders of Study Population

Mood status		Insomnia N=223	Non Insomnia N=87	P value
Depre- sion	No	36(16.14%)	80(91.95%)	<0.001
	Mild	77(34.52%)	6(6.89%)	
	Moderate	90(40.35%)	1 (1.14%)	
	severe	20(8.96%)	0 (0%)	
Anxiety	no	10(4.38%)	62(71.24)	<0.001
	Mild	39(17.48%)	16(18.39%)	
	Moderate	92(41.25%)	9(10.34%)	
	severe	82(36.77%)	0(0%)	
Stress	No	126(56.50%)	86(98.85%)	<0.001
	Mild	82(36.77%)	0(0%)	
	Moderate	13(5.82%)	1(1.14%)	
	Severe	2(0.89%)	0(0%)	

Table 3: Fears and Perception of Pregnant Women about COVID-19.

	Yes	No
worried about transmission to baby N=310	273(88.06%)	96(30.96%)
worried about bad outcome for baby N=310	214(69.03%)	37(11.93%)

nounced psychological symptoms in pregnant population regarding COVID seen in 75.2% of patients. Other studies report similar results with increased stress levels among pregnant women after corona as compared to pre COVID days.^{11,12} Corona Virus had devastating effects on human psyche with daily inpouring news of mortality and spread across borders. Various conspiracy theories circulated that doctors are killing people visiting the hospital. Social media pictures of mass graves, deserted streets, people confined to homes and economy collapse all added to stress. This particularly affected the pregnant women who were already prone to anxiety because of pregnancy. COVID during pregnancy is known to cause preterm labour and increased chances of fetal distress although no increased miscarriage rate is reported.¹³ All this uncertainty led to false beliefs of adverse pregnancy outcomes. Lockdown policy refrained women from travel to hospitals and consult doctors which further increased her worries. Moreover they were worried of transmission to their existing children and families in case of their own infection. Looking after household work if advised home isolation was another point of concern.

Depression and anxiety have correlation with sleep disturbances which is evident in our study showing insomnia in 74.3% of patients. Although insomnia is a feature which can develop during pregnancy and its frequency increases with increasing gestational age.^{14,15} Anxiety, stress and depression can compound sleeplessness which further adds to stress. Our study shows significant association of depression, anxiety and stress with insomnia. Anxiety during pregnancy is associated with higher risk of preterm labour and low birth weight of babies.^{10,16} It is also associated with impaired fetal cognitive development and increased chances of postpartum depression. Pregnant patients mental health services is an important duty of government and health care professionals. Urgent need of psychological support to pregnant women was emphasized in study from China for better perinatal and maternal outcome.¹⁷ Communi-

cation through telemedicine, online clinics with particular emphasis of evidence based information can allay their fears and improve pregnancy outcomes.

The women who were illiterate and belonged to poor socio-economic status were more prone to insomnia and psychological disorders. Illiterate people are more prone to believe rumors as their ability to analyse situation of disease is limited and they do not take proper preventive measures. Socioeconomic status of public was worsened due to lockdown which aggravated the psychological distress of patients. Patients living with joint family also had more insomnia with fears of transmission to children and elderly of family. We fail to address psychological health of the pregnant patients as we are busy in dealing with their obstetric issues. This study highlights high prevalence of psychological stress linked to insomnia in pregnant patients. Sleep disturbances can be corrected by nonpharmacological intervention of sleep hygiene, education and advising cognitive behavioral therapy for insomnia¹⁸. Mental health professionals should be an essential part of team with counselling sessions for the pregnant patients in this pandemic. These sessions are also important for health care professionals involved in care of pregnant women. Proper and timely counselling in such patients can reduce anxiety and fears and hence can lead to better pregnancy outcome.

Our study showed that a considerable number of patients believed that the disease is transmitted to the baby and majority of them thought that baby can have adverse outcome. Similar perceptions has been reported by other studies from Pakistan.^{7,8} Initial studies reported controversial findings with reports of vertical transmission.^{13,19} Mother anxiety is compounded when she believes that her baby is going to suffer the disease which doesn't have a cure. Latest studies with more data have shown that there is no vertical transmission of COVID-19 from mother to baby²⁰⁻²². The high false perception rate in study participants may be related to rumors on social media and lack of conclusive evidence. Things will get better when more data is gathered. It is part of duty of health care professionals to guide these women properly. Evidence based guidelines for proper communication of information should be formulated. They should be advised to minimize listening to news about COVID-

19, have link with supportive groups through social media and practice regular light exercises. Awareness should be created in public regarding prevention strategies and psychological health of pregnant patients and low probability of vertical transmission.

Conclusion

Pregnant women suffer from psychological distress during this COVID-19 pandemic and have perceptions that maternal infection can adversely affect babies by vertical transmission. Adequate counselling sessions by obstetricians and mental health professionals are needed to eliminate these false perceptions and relieve psychological stress.

Authors Contribution:

TW: Concept and Final Proof Reading

MW: Data Analysis

GR: Discussion Writing

NB: Initial Drafting

JM: Data Collection

Conflict of Interest: None

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Experience of Tocilizumab in Patient of Severe COVID-19

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Abstract

Objective: Covid-19 widespread pandemic leading to more than 800 thousand deaths. ARDS remains leading cause of death. Cytokine release syndrome like phenomenon was observed as important contributory factor for death and IL-6 inhibitors showed promising results in multiple case series. We share our experience of Tocilizumab in patients with very severe COVID-19.

Methods: In this prospective non-randomized cohort study conducted in COVID-ICU SIMS/SHL; patients who were given one or two consecutive doses of 400 mg Tocilizumab IV or subcutaneously after fulfilling criteria (Ferritin>700, CRP>70, D-Dimer>1000, FiO₂ >10L, pulmonary infiltrates or worsening status) were included. Patient's data was noted on proforma. Patients were given standard treatment including IV dexamethasone, azithromycin and broad spectrum antibiotic, Invasive or non-invasive ventilation and proning from day one.

Results: Twenty one (M=19, F=2) patients having severe or very severe Covid requiring invasive ventilation 17(81%) and non-invasive ventilation 4 (19%) were given Tocilizumab (400mg two doses) along with dexamethasone, antibiotics and general care. Average age was 58.9 + 7. Majority of the patients were below 65 years. Out of 21 patients 4 patients improved and 3 discharged 1 still admitted, mortality 81%(n=17). Raised inflammatory marker like CRP, Ferritin, D-Dimer and LDH and these improved after tocilizumab while Oxygen requirement doesn't improved significantly in majority of patients (n=20,95%) apart from 4 patients who improved gradually over next 7-10th day.

Conclusion: In very severe, steroids refractory COVID-Related ARDS Tocilizumab doesn't showed statistically significant improvement in outcome.

Key Words: COVID-19, Cytokine release syndrome, ARDS, Tocilizumab

Introduction

Coronavirus disease 2019 (COVID_19) was initially detected in China in December 2019 and was declared a global pandemic on March 11, 2020 by WHO¹. It has effected more than 23 million people with more than 0.81 million deaths across the world. Covid related knowledge including clinical presentation, diagnostics and management improved gradually. Now clinical spectrum of this illness ranges from asymptomatic

infected to life threatening acute respiratory distress syndrome (ARDS), circulatory shock, multi organ failure.^{2,3} Apart from respiratory system it involved GI, CNS, Musculoskeletal and cardiovascular systems. It remained main burden of hospitalization all over the world and hypoxia was the main reason for hospital admission creating massive demand for invasive ventilation an intensive care unit beds in a short period.^{4,5}

Treatment strategy evolved over time started from antivirals (oseltamivir, lopinavir/ritonavir), antimalarial (Hydroxychloroquine, primaquine), anti-parasitic (Ivermectin) various antibiotics (azithromycin, ceftriaxone, PIPTAZ, Meropenem) and changed to Remdesivir, dexamethasone and IL-6 inhibitor with variable benefits. Currently, the standard of care is supportive therapy and there is an urgent need for effective treatment against COVID_19.

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