

Prevalence of Anxiety, Depression and Stress among Antenatal Women Attending a Tertiary Care Centre in Kerala during COVID-19 Pandemic

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Abstract:

Introduction: Anxiety, depression and stress can cause negative impacts on the foetus and pregnancy. The COVID-19 pandemic provides a unique stressor requiring an assessment of its impact in the Indian set up. **Objectives:** 1. To assess prevalence of anxiety and depression among antenatal women attending the antenatal OPD at a tertiary care centre during COVID-19 pandemic using Hospital Anxiety and Depression Scale (HADS). 2. To determine stress perceived by antenatal women using the Perceived Stress Scale (PSS). **Method:** Antenatal women attending the outpatient clinic between November 2020 and January 2021 were consecutively enrolled into the study after obtaining consent and a semi-structured interviewer administered questionnaire was used to collect data. The outcome variables, including sociodemographic details, HADS and PSS scores, were analysed using SPSS software, and results expressed appropriately, with quantitative variables expressed as mean and standard deviation, and qualitative variables as proportions. **Results:** Prevalence of anxiety among antenatal mothers was estimated to be 39%, of which 87.8 % had income below the poverty line. Prevalence of depression was estimated to be 11.4 %. Stress levels were high in 41.9 % of the women. Anxiety showed a positive correlation with stress (correlation coefficient of 0.711). **Conclusion:** High prevalence of anxiety and stress among antenatal women, especially from poor income backgrounds, points to an urgent need for reassurance and counselling.


Keywords: Antenatal, Anxiety, COVID-19, Depression, Pandemic, Stress

Introduction:

Pregnancy is a vulnerable time for both the mother and the baby and any psychological stressor during this period can have far reaching consequences. Sustained, elevated prenatal psychological distress increases the risk of perinatal depression, as well as prenatal infection and illness rates.^[1]

Since the COVID-19 pandemic began in Wuhan^[2] in late 2019, countries and governments have

worked tirelessly to ensure the countering of the spread by issuing strict lockdown measures. All the restrictions in place, as well as the potential consequences of contracting the disease, have instilled a lot of worry among the general population, especially among pregnant women. A study in Canada^[3] done in April 2020 found substantially elevated psychological distress compared to similar pre-pandemic pregnancy cohorts, with 37% reporting clinically relevant symptoms of

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depression, 57% reporting clinically relevant symptoms of anxiety, and 68% reporting elevated pregnancy-related anxiety. A study done in Ireland^[4] shows over 35 % of pregnant women were self-isolating to avoid getting the disease. Almost half of women questioned (46.5 %; 33/71) altered their primary method of transportation. Bulk-buying was reported by many participants (66.2 % food, 42.3 % Hand sanitizer).

Hence although anxiety, depression and stress have been widely studied in the India^[5,6] previously, the rising pandemic provides a unique stressor which requires a fresh look in the Indian set up. It is against this background, that this study was done to assess the burden of anxiety and depression among antenatal population attending a tertiary care hospital in Kerala, South India, with the goal of helping obstetricians, public health professionals and psychiatrists become better prepared for the effect of the pandemic on the mental health care set up.

Objectives:

1. To assess prevalence of anxiety and depression among antenatal women attending the antenatal Outpatient clinic (OP) at a tertiary care centre dedicated to maternal and child health care, during the COVID-19 pandemic, using Hospital Anxiety and Depression Scale (HADS).^[7]
2. To determine stress perceived by antenatal women coming to the antenatal OPD during COVID-19 pandemic in terms of the Perceived Stress Scale (PSS).^[8]

Method:

A hospital based cross sectional study was conducted in the antenatal OPD of a mother and child health care tertiary centre in Kerala, India. The study was done from November 2020 and January 2021, and all consecutive antenatal women who attended the antenatal OPD and consented to be in the study were included, while those who had a pre-existing psychiatric illness were excluded.

In a study done by Niloufer et al,^[9] using the HADS questionnaire in a tertiary care setting, the prevalence of depression was found to be 49.7%. Applying this in the formula $4pq/d^2$ where 'p' is the prevalence of depression and 'd' is the relative precision of 20 %, the sample size was fixed as 105, after allowing a non-response rate of 5%.

A semi structured interviewer administered questionnaire was used to collect the data. The first part of the questionnaire dealt with sociodemographic details and medical history. The rest of the questionnaire comprised of the HADS scale^[7] and Perceived Stress Scale.^[8]

The Hospital Anxiety and Depression Scale (HADS) is a fourteen-item scale commonly used by doctors to determine the levels of anxiety and depression that a person is experiencing. Seven items relate to anxiety and seven relate to depression. Each item on the questionnaire is scored from 0-3 and a person can score between 0 and 21 for either anxiety or depression. A score between 0-7 is considered normal, 8-10 borderline abnormal (borderline case), and above 11 is considered as abnormal (case) as per the scale. The scale has been validated for use in Malayalam^[10] and has also been validated for use in hospital, primary care, and general population.^[11]

Stress perceived by the women was assessed using Perceived stress scale - a 10 item version. This scale comprises of 10 items with choices on a 5-point agreement scale. The questions were designed to tap the degree and frequency of stressful thoughts during previous one month. These questions are of general nature and can be applied to any subgroup of population. Perceived stress scale is reviewed as a questionnaire with good psychometric properties.^[12]

The data was collected in MS excel spreadsheets, by directly uploading into a Google Form and analysed with SPSS software, version 25. The sociodemographic variables studied included the patients age, education level, husband's education

level, ration card colour, income per month, and occupation. The outcome variables included anxiety and depression scores using HADS scoring, stress scores using Perceived Stress Scale. Other variables studied included obstetric score, gestational age, and co morbidities. During the analysis, the participants were categorised as low (below poverty line) or high income (above poverty line) based on ration card colour. Yellow (most economically backward) and pink (below poverty line) ration cards were considered low income, and blue (nonpriority subsidy, above poverty line) and white cards (nonpriority) as high income. For the results, all quantitative variables were expressed in mean and standard deviation and all qualitative variables were expressed as proportions.

Ethical considerations: The study was undertaken after obtaining consent from the Institutional Human Ethics Committee.

Results:

The population studied had a mean age of 25.6 years ± 4.25 years, with the youngest being 19 years and oldest participant aged 36 years. Among the study population 13.33% had education up to high school, 34.3% up to higher secondary school and others degree and above. Very few were illiterate or studied up to primary school. Majority of the study subjects (86.7%) were home makers while 12.3% were skilled workers. The socioeconomic status was assessed based on their ration card and 81.1% belonged to BPL families.

The population studied had a mean gestational age of 30.3 weeks ± 7.0 with 67.6 % in the third trimester and 27.6% in the second trimester. The mean age of first conception was 23.0 years ± 3.28 with 43.8% being primigravidae. Regarding contact history with respect to COVID, 2.9% had contracted COVID-19 during the current pregnancy and were recovering from it, 3.9% had been secondary or primary contacts of lab confirmed COVID-19 positive patients and 86.7% had no history of COVID-19 or

known contacts. The most common co morbidities seen were diabetes complicating pregnancy (14%), hypertension (13%) and thyroid problems (4.8%). (Table 1)

Table 1: Socio-demographic characteristics of study population (n=105)

Demographic variables		Number(%)	
Age (years)	<20	10 (9.52%)	
	21-25	47 (44.76%)	
	26-30	32 (30.47%)	
	31-35	12 (11.42%)	
	>36	4 (3.81%)	
Education	Husband	Wife	
	<SSLC	43 (40.95%)	15 (14.29%)
	Upto plus 2	29 (27.62%)	36 (34.28%)
	Diploma	9 (8.57%)	14 (13.33%)
	UG degree	23 (21.9%)	36 (34.28%)
PG degree	1 (0.95%)	4 (3.81%)	
Religion	Hindu	83 (79%)	
	Christian	13 (12.4%)	
	Muslim	9 (8.6%)	
Type of family	Joint	2 (1.9%)	
	Nuclear	87 (82.9%)	
	Extended	2 (1.9%)	
Income	BPL	86 (81.1%)	
	APL	20 (18.9%)	
Occupation	House wife	91 (86.7%)	
	Unskilled worker	1 (1%)	
	Skilled worker	13 (12.3%)	
Gestational age	1st Trimester	5 (4.8%)	
	2nd Trimester	29 (27.6%)	
	3rd Trimester	71 (67.6%)	
History of contact with COVID	Contracted COVID	3 (2.9%)	
	From hot spot	2(2%)	
	Health care worker	5 (4.8%)	
	Contact of COVID patient	4 (3.9%)	
	No history of contact	91 (86.7%)	
Comorbidities	Diabetes	15 (14%)	
	Hypertension	14 (13%)	
	Thyroid disorders	5 (4.8%)	
	Others	11 (10.4%)	

Table 2: Relation between demographic variables and anxiety (n= 105)

Demographic variable	Anxiety		Chi square value	p value
	Yes n (%)	No n (%)		
Age (yrs)				
<30	32 (78.04%)	57 (89.06%)	20.34	0.236
> 30	9 (21.9%)	7 (10.93%)		
Income				
Below poverty line	36 (87.8%)	49 (76.6%)	4.336	0.502
Above poverty line	5 (12.2%)	15 (23.4%)		
Contact history				
No	35 (85.3%)	6 (87.5%)	3.86	0.696
Yes	6 (14.7%)	8 (2.5%)		
Occupation				
Unemployed	36(87.8%)	55 (85.5%)	3.497	0.321
Employed	5(12.2%)	9 (14.5%)		
Obstetric score				
Primigravidae	20(48.8%)	26 (40.6%)	0.675	0.411
Multigravida	20(51.2%)	38 (59.4%)		

Table 3: Relation between demographic variables and depression (n=105)

Demographic variable	Depression		Fischer's exact test value	p value
	Yes n (%)	No n (%)		
Age				
<30 yrs	9(75%)	80(86%)	16.17	0.328
>30 yrs	3(25%)	13 (14%)		
Contact history				
No	10 (83.3%)	81 (87.1%)	8.28	0.246
Yes	2 (16.7%)	12 (12.9%)		
Obstetric score				
Primigravida	5 (41.7%)	41 (44.1%)	0.025	0.874
Multigravida	7 (58.3%)	52 (55.9%)		

Prevalence of anxiety in the population (n=105) was 39% (n=41) of which 19% (n=20) were anxiety cases and 20% (n=21) borderline cases as per HADS. Among those who had higher than 7 scores on the anxiety scale, 75.6% were aged between 21 and 28 year, whereas only 2.4% were aged below 21 year and 22% were aged more than 28 years of age. However, the association between anxiety scores and age was not found to be significant ($p > 0.05$). (Table 2) Majority of anxious women (87.8%) belonged to Below Poverty Line category. No significant association was found between anxiety and socioeconomic status ($p > 0.05$). (Table 2) Also, 85.3% of anxious women had no history of high-risk contact. There was no significant association between anxiety and history of contact with COVID-19. (Table 2)

Prevalence of depression was 11.4 % (n=12), of which 1% (n=1) was scored as depression case, and 10.4% (n=11) scored as borderline cases. In this study, 75% of those who were depressed were in the age group of 21-29 years. All the women who were depressed belonged to below poverty line category. Also, 83.3% had no high-risk contact. (Table 3) The mean score on the stress scale was 17.5 ± 1.029 and 41.9 % of the women scored higher than this mean score for the total population. Upon scoring for individual items on the stress scale, the highest mean scores were obtained for item 3 (mean score of 2.11 ± 1.24) and item 4 (mean score of 2.01 ± 1.04) of the Perceived Stress Scale, which tested how often the women felt like they were unable to control the things in their life, and how often they felt nervous and “stressed” respectively. Among those with stress, 11.5% were less than 20 years old, 75% were between 21 and 29 years and 13.6% were aged 30 and above. Majority of them (79.6%) were from lower income (Below Poverty Line) category and 84.1% had no history of COVID-19 or history of high-risk contact.

It was seen that 61 % of women with anxiety were in the third trimester, and 51.2% were primigravidae, whereas 50% of depressed women were in the first and second trimesters.

Higher anxiety scores correlated positively with higher stress scores (Spearman correlation coefficient of ± 0.717), with 46.5 % of women with anxiety having high stress scores as well.

Discussion:

The findings of this study corroborate with the findings of other studies done during the pandemic period, in Turkey,^[13] Canada,^[14] and Delhi^[15] each of which found prevalence of anxiety to be 64.5%, 57%, and 9.8 %, and prevalence of depression to be 56.3%, 37% and 13.2% respectively. Also, there is an increase in the prevalence of anxiety when compared to a previous study done in the similar Southern Indian setting of Mysore, India during the pre-pandemic period,^[16] which estimated the prevalence of antenatal anxiety to be 27%. It is also known that the pandemic brought multiple causes of worry, about not only the influences of the virus on the outcome of pregnancy, but also financial constraints. Indeed, a previous study done in coastal south India,^[17] had estimated the prevalence of depression to 16.3 % with one of the reasons cited as being financial constraints. A similar finding is reflected by this study in the result that 87.8 % of anxious women had income that was below the poverty line.

It is also highly relevant to appreciate that the results of this study substantiate those of a review done in Malaysia^[18] on the psychological impact of COVID-19 on antenatal women, which had found that the most common types of distress were anxiety and worry, followed by depression. The higher prevalence of anxiety as compared to depression in this study population also reflects this. Another interesting outcome from this study is that 85 % of anxious women also had no history of high-risk contact. In addition, higher anxiety scores also showed a positive correlation with higher stress scores. The participants also scored highest on questions that asked how often the women felt like they were unable to control the things in their life. This highlights the need to investigate factors causing high degrees of stress in the population and making

efforts to tackle these. It also supports evidence from other comparable studies conducted during this period, such as, the study by Nanjundaswamy, et al,^[19] that concluded that the obstetricians mentioned the need for resources to help them manage anxieties among mothers and the need for training in simple counselling techniques.

Also, unlike most other comparable studies done in the same time period in which the questionnaires were administered online, in this study, the questionnaire was administered directly by the researcher, adding to the strength of the data collected as the effectiveness of face-to-face interviewing was utilised.

An important aspect of how psychological problems have been affected by the ongoing pandemic is reflected on how the prevalence varies with age groups. It was noted from the analysis that among those women with stress, 11.5% were less than 20 years old, 75% were between 21 and 29 years and 13.6% were aged 30 and above, and this is comparable to another study done in Mumbai,^[20] which found that scores of Perceived Stress Scale, Patient Health Questionnaire (PHQ-9) and Generalized Anxiety Disorder (GAD-7) administered online in antenatal women in age group 21–30 years were higher than of women in the age group of 31–40 years. This could perhaps be reflective of the constant changes in the financial and social dynamics of this age group, contributing to increased levels of anxiety, and the need for targeting training in coping strategies in these women.

Conclusion:

This study concludes that antenatal women during the pandemic show a high prevalence of anxiety, more as compared to similar pre pandemic studies, and more as compared to the prevalence of depression. In addition, the subgroup of the population that was most anxious was those aged 21 to 29 years, and in the third trimester and from the lower socioeconomic class, even though the associations were not found to be statistically

significant. In addition to substantiating the findings of similar studies done during the same period, a distinctive conclusion of this study is that high anxiety correlated with high stress, highlighting the need to pay specific attention to women who appear to be exceedingly stressed during this period.

Recommendations:

Screening of antenatal women for psychological problems must be given importance and these issues addressed at the earliest by appropriate interventions, such as counseling and treatment.

Declaration:

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Conflict of Interest: Nil

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