Prevalence of Anxiety Disorders among Antenatal Women in a Rural Area Adjacent to Chennai

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Original Research Article

ABSTRACT

Aim: Antenatal anxiety and depression are major health problems all over the world. Research conducted during pandemics found that pregnant women are more vulnerable psychologically. The aim of the study is to estimate the prevalence of anxiety level during the COVID-19 pandemic among pregnant women

Study Design: A Cross sectional study design

Place and Duration of Study: was done on pregnant women attending the antenatal clinic at the rural area adjacent to Chennai, India between april 2021 to October 2021.

Methadology: This study was conducted among 74 pregnant women coming for antenatal checkups in the Rural area adjacent to Chennai. Hamilton – Anxiety Scale (HAM-A) was applied after initial psychiatry work up to all women who were selected for the interview. The statistically significant P value was < 0.05.

Results: The sociodemographic variables have been found as significant contributors in explaining the variability of the prevalence rates of antenatal depression. According to the findings, less than

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1/3rd of pregnant women experience depression as a result of life circumstances such as economic crises in order to support their families. These were identified as significant risk variables ($P>0.05$). And also, this study identified those who receiving insufficient socioeconomic assistance were more likely to experience multiple psychological discomfort [atleast 1] than women who got appropriate economic support. ($r = -0.112$, $P < 0.001$)

Conclusion: COVID-19 infection during pregnancy was associated with increased levels of generalized anxiety scores. Patient-tailored psychological support should be a mainstay of comprehensive antenatal medical care in order to avoid anxiety- related complications.

1. INTRODUCTION

Corona Virus Disease (COVID-19), a new ribonucleic acid virus which presents with symptoms of fever tiredness, and dry cough [1], was declared a global pandemic by the World Health Organization [1,2]. Empirical evidence suggests that natural disasters and disease outbreaks elicit a profound negative impact on the perinatal health outcomes in part due to excessive exposure to distressing environmental situations. With a global pre-pandemic prevalence of 20 percent, perinatal mental distress (i.e., anxiety, depression, and stress during pregnancy and postpartum) already imposes a significant threat to women's health (physical and emotional) and perinatal outcomes [3].

Furthermore, the likelihood of adverse cognitive, behavioral, and emotional outcomes also increases in children born to these mothers. Much of this empirical evidence on natural disasters and disease outbreaks is based in high-income countries limiting our understanding of the impact of disease outbreaks on perinatal health outcomes of women residing in low- and middle-income (LMI) countries

Pregnancy and anxiety affect each other. In the background of chronic life stressors, women may have difficulty in coping with the additional demands of pregnancy. Many women, particularly those living in poverty or having dependent children, may have a negative view of pregnancy. Memories of poor parenting or abuse, the women have suffered may resurface and cause distress. Domestic conflicts also lead to emotional problems. Maternal mental state in pregnancy may have significant impact on the mental and behavioural of the offsprings [4].

Anxiety, when it occurs in pregnancy is called Antenatal Anxiety. The prevalence of prenatal anxiety is estimated to be 10–15% in developed countries and 19–25% in low income countries. Women who experience antenatal anxiety often continue to have depressive symptoms in the post-partum period.

Fear, worry, and anxiety during pregnancy has negative physical and psychological health consequences for pregnant women. Previous studies suggest that pregnancy stress may lead to mother-infant relationship disorder, antenatal and postpartum depression, increased physical problems [5, 6], and an increased risk of pre-eclampsia [7]. Rashidi and her colleague have reported an increased preference for cesarean during the COVID-19 pandemic in Tehran [8].

In addition to worry about COVID-19, pregnancy brings specific worries to women. COVID-19 related worries may elevate some pregnancy specific worries such as worry about fetus health or mother's own health and worry about going to hospital. Several studies have attempted to understand the nature of worries in pregnant women and have developed scales to measure the nature and the extent of pregnant women's worries. Results of these studies indicate that pregnant women's worries originate from different sources. These sources can be classified as socio-medical, socio-economic, the health of the fetus, mother's own health and relational issues [9]. Women who have supporting networks of friends and family may be less stressed and have better mental health. Poor family ties and a lack of social support, on the other hand, may be linked to anxiety symptoms. However, in the context of the COVID-19 pandemic, it is unclear if adequate economic and familial support may still improve women's psychological well-being [10].

Hence, the current study sought to determine the incidence of prenatal anxiety and its risk factors among pregnant women at Antenatal health care, Rural area adjacent to chennai, India. Research article also points to a growing body of

evidence that common mental disorders such as anxiety, and stress during pregnancy, conferring a specific risk to the growing fetus and affecting the child development.

2. METHADOLOGY

The research comprised of 74 pregnant women with age distribution between 18 – 35 years. Also patients were selected based on the following inclusion and exclusion criteria Pregnant Women attending the antenatal clinic were included and Pregnant Women with serious medical conditions and who are in labour were excluded.

2.1 Data Analysis

1. Data was collected as part of routine antenatal checkup for at least seven months apart between April 2010 and October 2021; including age, socioeconomic status, past medical history and Obstetric data.
2. Hamilton Anxiety Scale [HAM-A] was used. Although HAM-A is still extensively used as a clinical trial outcome measure, it has been criticised for its often inadequate capacity to distinguish between anxiolytic and antidepressant effects, as well as somatic anxiety versus somatic side effects.The HAM-A does not include any standardised information. Regardless, the scale's indicated levels of interrater reliability appear to be satisfactory.

2.1.1 Questionnaire survey for psycological distress

The information of psychological distress of the participants was assessed by the 5 international validity scales, include insomnia, depression, tension, fear and Somatization. Information about COVID-19 included income loss caused by COVID-19 and whether or not their relatives or friends were infected with COVID-19.

2.2 Statistical Analysis

The data collected was entered in MS Excel and analyzed using SPSS 16 version. The demographic data was presented as frequencies and Percentage. Test of association was done using Fischer exact 2 sided test. The association between perceived economic support level and

the six forms of mother psychological distress was investigated using Spearman correlation analysis.

3. RESULTS

74 pregnant women were included in the study. They were in the age group of 18 to 35 years.Mean age of the study samples was 25.55±5.518 years. Out of 74 pregnant women, most from rural area (58, 78%), and mostly in 3rd trimester of pregnancy (58, 78%).

3.1 Socio Demographic Characteristics of the Study Population

The sociodemographic factors of age, economic status, past medical history and Gravidity have been identified as important factors in explaining the variability of the prevalence rates of antenatal anxiety. [Table: 1].

3.1.1 Correlation between antenatal anxiety and various risk factors

Out of 74 women in whom HAM-A questionnaire was applied, [Table: 1].

3.1.2 Socio economic status [SES] of the study population

The socio economic status varies with the composition of the study population. About 19 woman with anxiety belong to lower middle income family. Socio-economic status of the respondents with depression was significant on fischer2 sided test (*P*-value >0.05).

3.1.3 Frequencies of anxiety during antenatal period

According to HAM-A scores, 44(59%) of the participants scored in the normal range, 17(23%) lied in the mild anxiety range, 10 (14%) lied in the moderate anxiety while 3 (4%) lied in the severe anxiety range. Levels of anxiety was highest among women of third trimester (Table 2).

3.2 Psycological Distress

Women with low income and less family financial support reported significantly higher rates of psychological distress than women with strong family financial support. Among women with lower middle economic support [n=36], 41.8% reported depression, 31.1% reported tension, 8.2% reported insomnia, 10.6% reported somatization and 8% reported fear. [Table:3].

4. DISCUSSION

This study looked at the link between a severe life-threatening public health incident and maternal mental health in situations when there is added stress and worry owing to the concern for an unborn foetus. Following the Chinese government's proclamation of human-to-human transmission of COVID-19 on January 20, 2020, global concern.

Table 1. Prevalence of antenatal Anxiety across socio demographic factors in the study population (N=74)

Variables	People with No anxiety	People with anxiety	Total	*P* value	Fisher 2 sided
Age					
18-24	6 (46.1%)	7 (54%)	13	>0.05	0.091
25-30	7 (17.5%)	33(82.5%)	40		
31-35	4(19%)	17(81%)	21		
Socio economic status					
Lower middle	8(22%)	28 (78%)	36		
Upper middle	9(27%)	25(73%)	33		
Upper	1 (33%)	2 (67%)	3		
Lower	1(50%)	19(50%)	2	<0.05	0.058
Parity					
Primi	13(28%)	32(71%)	45		
Multi	4(13%)	25(87%)	29	<0.05	0.046
Past Medical history					
Present	1(5%)	17(95%)	18		
absent	16(28%)	40(72%)	56	<0.05	0.027

Table 2. Frequencies of anxiety in different trimesters

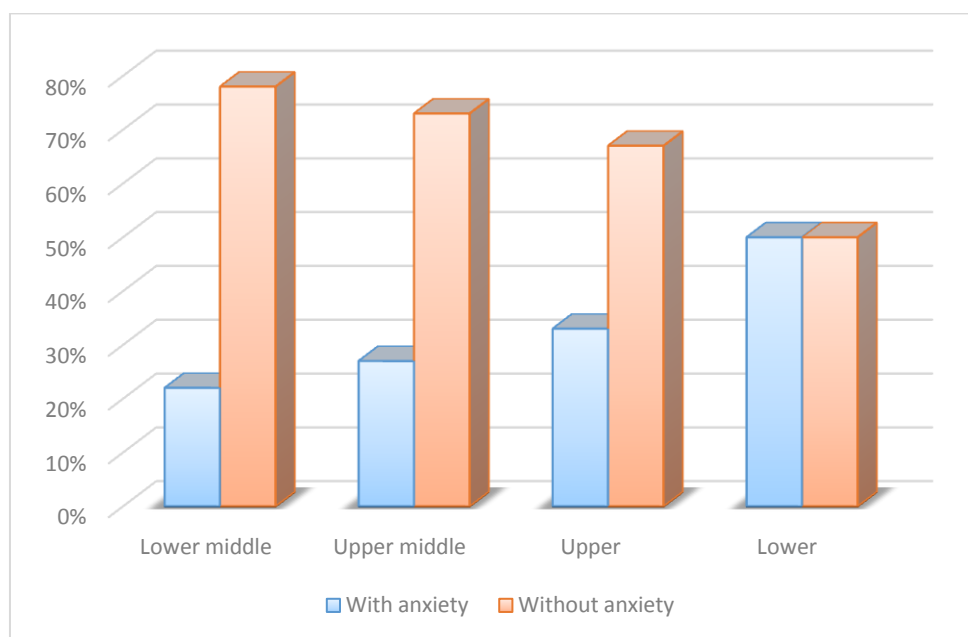| Trimesters of Pregnancy	Anxiety Categories				Total
	Normal	Mild	Moderate	Severe	
First	2	1	1	0	4 [6%]
Second	7	3	2	0	12 [16%]
Third	35	13	7	3	58 [78%]
Total	44 [59%]	17 [23%]	10 [14%]	3 [4%]	74 [100%]

Fig. 1. Bar chart of SES distribution in study group (N=74)

Table 3. Self-reported psychological distresses of pregnant women with lower middle economic status, n (%)

Psycological measures	Total [n=36]	F/X^2	P value	r
Depression	15	22.17	<0.001	-0.118
Tension	11	17.21	0.002	-0.117
Fear	3	3.41	<0.001	-0.112
Insomnia	3	3.26	0.032	-0.034
Somatization	4	3.76	0.002	-0.024

Also this study utilised a structural equation modelling approach with data from pregnant women in Rural area to provide strong support for the conceptual anxiety process model of the relationships between stressors and antenatal depression developed by Berthelot et al., 2020 [10] .Our study found that demographic and risk variables such as age, economic position, past medical history and Gravida all contribute to the chance of mothers experiencing Anxiety during pregnancy.

In this study, 78 % of individuals in their third trimesters developed anxiety, with the first trimester posing a modest risk. This frequency was slightly lower than that anticipated for Debretabor Town 88% which had a very comparable background to the current study, and for Jimma's rural regions 92% [11,12]. However, for ethical considerations, the current study excluded participants with EPDS scores more than 17, instead predicted anxiety in women in their all trimesters.

Due to methodological variations, our estimate of anxiety prevalence may have been lower than earlier estimates in other rural areas of South India [13]. All other research included pregnant women regardless of week of pregnancy, and depressive symptoms are thought to be greater in the first trimester than the second and third trimesters.

According to HAM – A tool, Mild anxiety was found in 23% of our study sample and moderate/severe anxiety in 18%. The rates of generalized anxiety reported in our study are lower than most of the other studies conducted thus far. This finding is akin to the wide variation in the rates observed in these studies. As speculated, sample size and the measurement tools used might have influenced the reported rates.

Nine studies used the GAD-7,5 studies used the State Trait Anxiety Inventory (STAI) and 4 studies used the Zung Self-Rating Anxiety Scale (SAS). Twenty of these studies were conducted using online surveys, which have some inherent limitations on the validity of the reporting (Andrade, 2020), especially in the low income and low literacy populations [14].

In general, our present study shows that the rates of significant anxiety are higher in studies that have used smaller sample sizes. However, one of the factors that likely determined the low anxiety rates found in our study might be the period of study. Most of the reported studies were conducted before April 2021, i.e. during the second global wave of the COVID-19 pandemic where the cases were on the rise, public restrictions were being imposed and the information regarding the COVID-19 infection and its management was uncertain [15].

In contrast, another study was conducted between July and October 2020 when the public restrictions in India began to be waived off and better management strategies for pregnant became operational. Kotabagi et al. also reported that the mean scores of anxiety in pregnant women reduced during the tail end of the pandemic (first wave) [16].Further, access to antenatal care and to outdoor spaces, which were deemed not only to reduce vulnerability to stress but also improve resilience among pregnant women Preis et al. were possible during the "unlocking" of public restrictions in India during the study period [17]. The resultant higher sense of well-being and relief after lockdown may have decreased rates of anxiety. Moreover, relatively better COVID related outcomes in Asia might have also had an influence on the lower rates of anxiety [18].

In the current investigation, financial hardship and multiple gravid appeared as a major stressor that had both direct and indirect impacts on prenatal anxiety. Furthermore, individuals with appropriate family budget access had a substantially lower median depression score than participants from the high income class. These findings back with route analysis models used in

India and other parts of China, where financial stress had both direct and indirect impacts on prenatal depression. Previous studies have reported that 'employed' status, higher educational level, lower income, multiparity and being in the first or third trimester are significant correlates of antenatal anxiety [19-22].

There is substantial evidence that psychological discomfort during pregnancy increases the chance of psychiatric disorder in the child. Pregnancy is a particularly precious time in a woman's life. Mothers who are affected by changes in the level and function of the endocrine system during pregnancy sometimes experience massive mood swings and even mental problems such as anxiety, tension, fear, depression and insomnia. Present study with one significant psychological distress during antenatal time highlight the essential role of adequate economic support in mental health of pregnant women through major life-threatening public health events. Similarly study by Wang et al., 2021 revealed that Perceived family and economic support level was negatively correlated with depressive symptoms (r = -0.118, P < 0.001), anxiety symptoms (r = -0.111, P < 0.001), and PTSD symptoms (r = -0.155, P < 0.001) [23].

5. CONCLUSION

According to the findings of this study, the COVID-19 pandemic has a detrimental influence on the mental health of rural pregnant women. Women with limited financial assistance from their families were more likely to experience anxiety, sleeplessness, despair, tension, and worry. Almost one-fifth of the women had a history of abortion and were concerned about the baby's gender. Antenatal anxiety is linked to a history of anxiety, a poor socioeconomic level, and multiple pregnancy. To improve women's psychological well-being, a rural maternal mental health awareness programme should be provided to pregnant women at antenatal clinics.

CONSENT AND ETHICAL APPROVAL

The study was approved by the Institutional Ethics Committee (IEC) of ACS Medical College (Ref:No. 321/2021/IEC/ACSMCH Dt. 9.9.2021). Participants were informed about the purpose of the study. Written informed consent was obtained. The participants were assured that the information obtained will be for research purposes and would therefore be anonymous and kept strictly confidential.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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