

## RESEARCH ARTICLE

# A DESCRIPTIVE ARTICLE TO ASSESS THE DEPRESSION, ANXIETY AND STRESS AMONG ANTENATAL WOMEN WITH HYPOTHYROIDISM ATTENDING ANTENATAL CLINIC PGIMER CHANDIGARH (2021- 2023).

## ABSTRACT

**INTRODUCTION:** Hypothyroidism is characterized by a decline in the function of thyroid and also increase in demand for blood thyroid hormone. It is the second most common condition after gestational diabetes to occur during pregnancy in India, with a percentage that can range from 4.8 to 12%.<sup>1</sup> This study assessed the depression, anxiety and stress among antenatal women with hypothyroidism.

**OBJECTIVE:** To assess the depression, anxiety and stress among antenatal women with hypothyroidism attending antenatal clinic PGIMER Chandigarh (2021- 2023).

**MATERIALS & METHODS :** A descriptive study was conducted among antenatal women with hypothyroidism attending antenatal clinic, PGIMER, Chandigarh. Consecutive sampling technique was used to enroll 120 antenatal women with hypothyroidism during the period of July- August 2022. Ethical permission was obtained from the Institute Ethical Committee, PGIMER, Chandigarh. The data was collected by interviewing participants as per Interview schedule consisted of Socio-demographic profile, menstrual profile, marital and obstetrics profile, Obstetric history of previous pregnancies and Clinical profile. Standardized scale i.e; DASS-21 scale to assess the depression, anxiety and stress among the antenatal women with hypothyroidism. The data were entered and analyzed using SPSS version 20.

**RESULTS:** The results shows that as per Socio-demographic profile the age of women ranged from 21 to 41 years with mean age  $29.53 \pm 4.53$ . More than half (59.2%) were in age group of 21-30 years. Education status of 40% antenatal women was intermediate level, housewives (89.2%). 70% women were following Hindu religion, 76.7% was residing in urban areas, and 73.3% were vegetarian as a dietary habits. According to Kuppuswami's socioeconomic status more than 50% of women were from upper middle class socioeconomic status. The results of the present study shows that 36(30%) of women had depression, 71(59.2%) of women had anxiety and 78(65.1%) of women had stress.

**CONCLUSION:** The present study concluded that most of the women had mild depression, mild anxiety and mild level of stress was found among antenatal women with hypothyroidism.

**Keywords:** Hypothyroidism, Depression, anxiety, stress

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## INTRODUCTION

The pregnancy results in important physiological and hormonal changes brought on by pregnancy affect thyroid function, which is primarily influenced by beta- human chorionic gonadotropin ( B- HCG )and estrogen.<sup>2</sup> In endocrine system mainly thyroid problems, particularly decreased thyroid

function, are common in pregnant women.<sup>2</sup> Hypothyroidism is widely prevalent in pregnant woman, i.e, 4.8-12% in India.<sup>3</sup>

Thyroid hormones, which are widely disseminated throughout the central nervous system, control neuronal development and create synapses between them. Studies have revealed a favorable link between depression and overt and subclinical hypothyroidism. Changes in the hypothalamic-pituitary- thyroid (HPT) axis are known to be connected with depression.<sup>4,5</sup>

Women who have hypothyroidism are more likely to report having depression than any other psychiatric disorder, hence depression screenings should be performed on hypothyroidism patients. A number of biochemical aspects of hypothyroidism, including depression, are connected. Elevated thyroid peroxidase antibody (TPO-Ab) levels and serum thyroid-stimulating hormone (TSH) levels are linked to higher risk of depression and negative associations, respectively.<sup>6</sup>

Multiple research study also showed that somatostatin and serotonin affect the hypothalamus-pituitary-thyroid axis, which ties hypothyroidism to depression, and came to the conclusion that hypothyroidism patients who are undiagnosed, untreated, or undertreated have a higher chance of developing depression.<sup>7</sup>

Both mood disorders and thyroid dysfunction are frequent during pregnancy and the postpartum period, and they both have serious short- and long-term effects on both mothers and their newborns. It is now commonly acknowledged that mood and cognitive abnormalities frequently occur in combination with alterations of thyroid metabolism in the brain. Thyroid hormones have a variety of impacts on the central nervous system and undergo major changes throughout pregnancy.<sup>8</sup>

Stress is the state of threatened homeostasis and is characterized by the activation of the sympathetic nervous system and the hypothalamic-pituitary-adrenal (HPA) axis, which together make up the stress system. The peripheral and central nervous systems both experience adaptive neuroendocrine and metabolic changes brought on by stress. The thyroid axis may be impacted by chronic stress-related dysregulation of the HPA axis, which may impact all endocrine systems. A decrease in the synthesis of thyroid stimulating hormone (TSH) is also linked to the activation of the HPA axis.<sup>9</sup>

A portion of the study also showed that women with hypothyroidism have a positive correlation between their anxiety and depression scores and TSH levels, are more likely to experience these disorders, and need screening tests to identify them early.<sup>10</sup>

## **OBJECTIVE**

To assess the depression, anxiety and stress among antenatal women with hypothyroidism attending antenatal clinic PGIMER Chandigarh.

## **MATERIALS AND METHODS**

A descriptive study was conducted among antenatal women with hypothyroidism attending antenatal clinic, PGIMER, Chandigarh and who are willing to take part in study. Consecutive sampling technique was used to enroll 120 antenatal women with hypothyroidism during the period of July- August 2022. Ethical permission was obtained from the Institute Ethical Committee, PGIMER, Chandigarh. A written informed consent was obtained from the participants. The data was collected by interviewing participants as per Interview schedule consisted of Socio- demographic profile, menstrual profile, marital and obstetrics profile, Obstetric history of previous pregnancies and Clinical profile. Depression, Anxiety , Stress scale (DASS-21) used to assess the magnitude of depression, anxiety and stress by interviewing the participants using DASS-21 questionnaire. The interpretation of the score of the scale is depression level Normal (0-4). Mild (5-6), moderate (7-10), severe (11-13) , Anxiety level- Normal (0-3), mild (4-5), moderate (6-7), severe (8-9) and Stress level – Normal (0-7), mild (8-9), moderate (10-12) , severe (13-16). The interpretation of the scoring of scale is for Better Adherence (12) and Non Adherence (>12). The data were entered and analyzed using SPSS version 20.

## RESULTS

### Part 1- Identification data of the antenatal women with hypothyroidism

**Table 1(a): Socio demographic profile of antenatal women with Hypothyroidism.**

N= 120

Demographic Variables	f (%)
<b>Age (yrs)</b>	
21-30	<b>71(59.2)</b>
31-41	49(40.8)
<b>Religion</b>	
• Hindu	<b>84(70.0)</b>
• Muslim	04( 3.3)
• Sikh	32(26.7)
<b>Education</b>	
• No formal education	01( 0.8)
• Upto High school	24(20.0)
• Intermediate	<b>48(40.0)</b>
• Graduate	42(35.0)
• Post-graduate	05( 4.2)
<b>Habitat</b>	
• Rural	28(23.3)
• Urban	<b>92(76.7)</b>
<b>Occupation</b>	
• Housewife	<b>107(89.2)</b>
• Private job	11( 9.2)
• Government job	04( 3.3)
<b>Socioeconomic status (modified Kappuswamy's socio economic status scale 2021)</b>	
• 26-29-upper (I)	01( 0.8)
• 16-25- upper middle (II)	<b>60(50.0)</b>
• 11-15- lower middle (III)	55(45.8)
<b>Type of family</b>	
• Nuclear	<b>95(73.3)</b>
• Joint	25(20.8)
<b>Dietary habits</b>	
• Vegetarian	<b>88(73.3)</b>
• Non- vegetarian	28(23.3)
• Eggitarian	04( 3.3)

Age Mean  $\pm$  SD (Range) - 29.53 $\pm$ 4.53 (21-41)

**Table 1(a)** represents the socio-demographic profile of antenatal women with hypothyroidism in the experimental and control group. Majority of the antenatal women with hypothyroidism were in age group 21-30 years. The mean age  $\pm$  SD of the antenatal women was 29.53 $\pm$ 4.53. According to education status 40% of antenatal women were educated upto intermediate level. More than 50% of women belongs to the Hindu religion, residing in urban area, were housewives, living in

nuclear family and dietary habits were vegetarian. According to Kuppuswami’s socioeconomic status more than 50% of women belongs to upper middle class socioeconomic status.

**Table 1 (b): Past and present history of women with thyroid disorder**

**N= 120**

<b>Variables</b>	<b>f (%)</b>
<b>Past History -</b>	
• Family history of thyroid	04( 3.3)
• Infertility	<b>20(16.7)</b>
• Preterm delivery	09( 7.5)
• Type I diabetes	02( 1.7)
• Thyroid surgery	01( 0.8)
• Goiter (enlargement of thyroid gland)	01(0.8)
• >30 year of age	<b>59(49.2)</b>
• Anti TPO Ab presence	13(10.8)
<b>Diagnosis of thyroid disorder</b>	
• During present pregnancy	<b>70(58.3)</b>
• Before pregnancy	13(10.8)
• Previous pregnancy	37(30.8)
<b>Management done if diagnosed before pregnancy</b>	
• Medical management	<b>36(30.0)</b>
• Surgical management	01(0.8)
<b>Management done during previous pregnancy</b>	
• Medical management	36(30.0)
• Follow same management in present pregnancy	36(30.0)

**Table 1b** depicts the past and present history of antenatal women with hypothyroidism. Results shows that less than 20% of women had history of infertility, 58.3% had diagnosed with thyroid disorder during present pregnancy whereas 10.8% was diagnosed before pregnancy and all were taking medical treatment. 30.8% were diagnosed in previous pregnancy, and taken medical treatment, they also followed the same treatment in present pregnancy.

**Table 2 (a): Assessment of level of depression, anxiety and stress as per (DASS-21) in antenatal women with hypothyroidism**

**N=120**

<b>Variables</b>	<b>f (%)</b>
<b>Depression level</b>	
Normal(0-4)	<b>84(70.0)</b>
Mild(5-6)	25(20.8)
Moderate (7-10)	09 ( 7.5)
Severe (11-13)	02( 1.7)
<b>Mean ± SD</b>	<b>3.05 ± 2.49</b>
<b>Anxiety Level</b>	
Normal (0-3)	49(40.8)
Mild (4-5)	<b>50(41.7)</b>
Moderate (6-7)	15(12.5)
Severe (8-9)	06( 5.0)
<b>Mean± SD</b>	<b>4.60 ± 5.11</b>
<b>Stress level</b>	
Normal(0-7)	42(35.0)
Mild(8-9)	<b>44(36.7)</b>
Moderate(10-12)	26(21.7)
Severe (13-16)	08( 6.7)
<b>Mean± SD</b>	<b>8.36 ± 3.52</b>

**Table 2 (a)** depicts the comparison of level of depression, anxiety and stress in antenatal women with hypothyroidism by using DASS-21 scale. The result shows that 20.8% had Mild level of depression. 41.7% had mild level of anxiety. 36.7% had mild level of stress among antenatal women with hypothyroidism. The mean score of depression is  $3.05 \pm 2.49$ , mean score of anxiety is  $4.60 \pm 5.11$  and mean score of stress is  $8.36 \pm 3.52$ .

## **DISCUSSION**

Thyroid hormone affects the central nervous system during developmental phase and also throughout life and thyroid dysfunction may result in significant changes in mental health.

A similar study conducted by Nuguru .S.P et al and concluded that patients with hypothyroidism commonly experience depression as a comorbidity and hence, screening for hypothyroidism in patients suffering from depression is necessary. <sup>7</sup>Another study conducted by konstantakou P et al. which shows similar results that there is positive association between low-normal thyroid function at 2<sup>nd</sup> and 3<sup>rd</sup> trimesters of pregnancy and postpartum with anxiety, depression. <sup>11</sup> A study conducted by Bunevicius .R et al and found that there is association between thyroid dysfunction and depression in late pregnancy and evaluation of thyroid function during gestation is warranted which was inconsistent with the similar findings from the present study .<sup>12</sup> A study conducted by Loh Heng .H et.al also supports the present study and concluded that subclinical hypothyroidism has a negative impact on depression and early and routine screening of depression is essential to prevent morbidity and mortality.<sup>13</sup> Another study conducted by Arabinda Ray et al and found that the extent of anxiety was mild among the SCH, whereas the extent of depression was moderate among the cases and there is a significant correlation between anxiety and SCH and depression and SCH which was also similar with the present study.<sup>14</sup> A study conducted by Samarjit Koner et al. also found similar results that occurrence of anxiety and depression was significantly more in hypothyroid subjects as compared to controls.<sup>10</sup>

## **CONCLUSION**

The present study concluded that most of the women had mild level of depression, anxiety and stress among antenatal women with hypothyroidism and Depression is the most common disorder associated with hypothyroidism during pregnancy. So, assessment and screening tests needs to be administered for early detection of such disorders in hypothyroid patients prevent morbidity and mortality.

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