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### Prevalence of thyroid disease in women

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#### Abstract

Thyroid disorders are common. In fact, about 12% of people will experience abnormal thyroid function at some point during their lives. The most common thyroid problems involve abnormal production of thyroid hormones. Too much thyroid hormone results in a condition known as hyperthyroidism. Insufficient hormone production leads to hypothyroidism. Present study was conducted in Muzaffarpur district of Bihar. 105 women age group of 20-65 years, who were suffering from thyroid deficiency were purposely selected. Interview schedule was constructed to record the data obtained, the interview questions were analyzed using descriptive narrations. For statistical analysis, frequency tables were used to compare basis demographic and other desired characteristics. It was found in present study that more than half (58.1%) of the women were suffering from hypothyroidism, while 41.9% of them were hyperthyroidism. Majority (84.09%) of the women were suffering from fatigue as results/signs of hyperthyroidism, while majority of the women suffering from fatigue, poor concentration, constipation, muscle & joint aches, depression and excessive menstrual bleeding as result/signs of the hypothyroidism, depression and feeling cold were observed in some of the women respondents. It is concluded that there is highly significant association was observed between age, pregnancy and menopause with types of thyroid, while consumption of iodine, nutritional awareness and genetic history were not associated with the types of thyroid.

**Keywords:** Hypothyroidism, hyperthyroidism, women

#### 1. Introduction

Thyroid disease is a medical condition that affects the function of the thyroid gland. The thyroid gland is located at the front of the neck and produces thyroid hormones that travel through the blood to help regulate many other organs, meaning that it is an endocrine organ. A properly functioning thyroid will maintain the right amount of hormones needed to keep the body's metabolism functioning at a satisfactory rate. As the hormones are used, the thyroid creates replacements. The quantity of thyroid hormones in the bloodstream is monitored and controlled by the pituitary gland. When the pituitary gland, which is located in the center of the skull below the brain, senses either a lack of thyroid hormones or a high level of thyroid hormones, it will adjust its own thyroid stimulating hormone and send it to the thyroid to tell it what to do. These hormones normally act in the body to regulate energy use, infant development, and childhood development. When the thyroid produces too much hormone, the body uses energy faster than it should. This condition is called hyperthyroidism. When the thyroid does not produce enough hormone, the body uses energy slower than it should. This condition is called hypothyroidism. There are many different reasons why either of these conditions might develop. According to a projection from various studies on thyroid disease, it has been estimated that about 42 million people in India suffer from thyroid diseases.

Women are more likely than men to have thyroid disease. It is a silent disease where the symptoms are subtle and may be often overlooked during diagnosis, so it is essential to critical monitoring during such type of diagnosis. Generally, the symptoms of the under-active thyroid are similar in men as well as in women, with weakness, fatigue, weight gain, depression and high cholesterol dominancy. One in eight women will develop thyroid problems during her lifetime. In women, thyroid diseases can cause problems with menstrual period, getting pregnant & health problems for the mother and the baby during pregnancy. A good diet consisting of iodine-rich foods, protein, eggs, probiotics like yogurt and healthy fats such as cow-milk fat that help to manage in balancing hormones. Genetics plays a crucial role in both determination of thyroid hormones and thyroid stimulating hormone concentrations,

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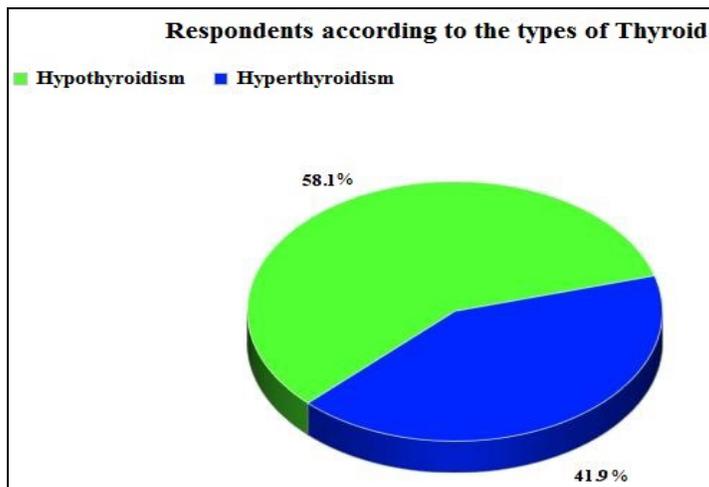
and susceptibility to autoimmune thyroid disease. People who have a history of thyroid problems in their family would be predisposed to thyroid abnormalities, keeping in the view of the above said present study was undertaken to study the prevalence of thyroid in women.

**2. Methodology**

Present study was conducted in Muzaffarpur district of Bihar. 105 women age group of 20-65 years, who were suffering from thyroid deficiency, were purposely selected from the Sadar hospital of Muzaffarpur town for the study. Interview schedule was constructed to record the data obtained. Iodine

consumption (using 24-hour recall method) was collected. Iodine was calculated from the food consumed by the study group using food composition table from the standard of NIN. The results were compared with RDA given by ICMR (2010). The interview questions were analyzed using descriptive narrations. For statistical analysis, frequency tables were used to compare basis demographic and other desired characteristics. Comparison of characteristics between two proportions was done through online Socscistatistics software.

**3. Results & Discussion**



**Fig 1:** revealed the data on types of thyroid diseases of the women. According to the data more than half (58.1%) of the women had hypothyroidism, while 41.9% of them were suffering from hyperthyroidism.

**Table 1:** Age and types of thyroid diseases of the respondents

Age (in years)	Hypothyroidism		Hyperthyroidism		Chi-square value	P-value
	n=61	%	n=44	%		
20-35	21	34.43	05	11.36	9.1084	.010523*
36-50	17	27.89	11	25.00		
50-65	23	37.70	28	63.64		

Significance level = 0.05 \*Significant at  $p < .05$

Table-1 showed the data on relationship between types of thyroid (Hypothyroidism & Hyperthyroidism) with age of the women. According to the data there is highly significant association (The chi-square statistic is 9.1084 & the p-value is

0.010523) was observed between age and types of thyroid. Hypothyroidism was found near about similar in all the age group, while Hyperthyroidism was found more in 50-65 years of age group.

**Table 2:** Pregnancy & types of thyroid

Variables	Hypothyroidism		Hyperthyroidism		Chi-square value	P-value
	n=61	%	n=44	%		
During pregnancy	46	75.41	17	38.64	14.4029.	.000148*
Pre/post pregnancy	15	24.59	27	61.36		

Significance level = 0.05 \*Significant at  $p < .05$

Table -2 revealed the data on relationship between pregnancy and types of thyroid. 75.41% of the Hypothyroidism women were affected during pregnancy, while 61.36% of the women who were suffering from the hyperthyroidism in present were

affected during pre/post pregnancy, a strong significant association (The chi-square statistic is 14.4029 & the p-value is.000148) was observed between pregnancy and types of thyroid.

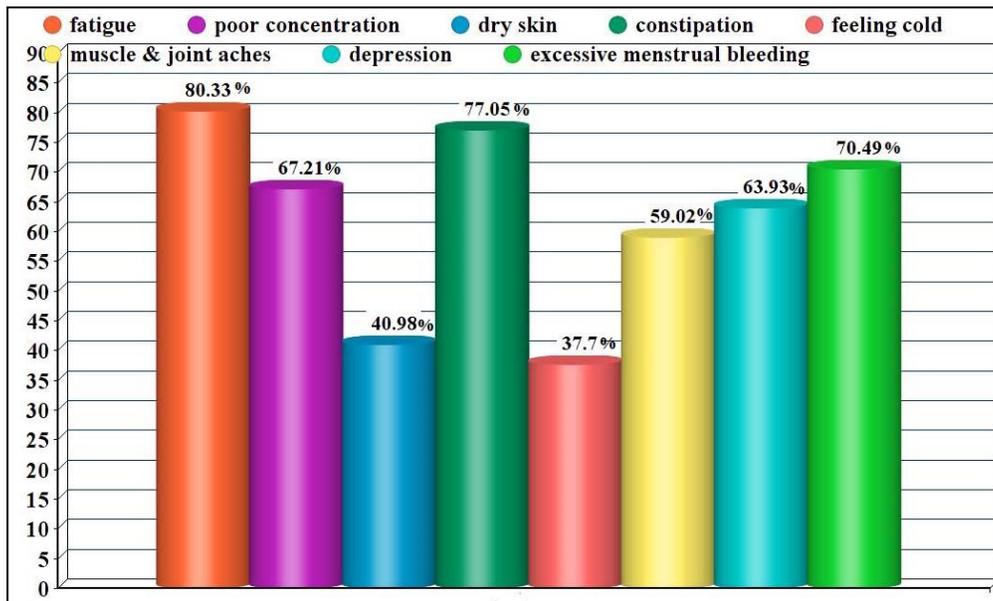


Fig 1: Signs & Symptoms of Hypothyroidism in Respondents

Figure-2 showed the data on signs & symptoms of hypothyroidism in respondents. According to the figure majority of the women suffering from fatigue, poor concentration, constipation, muscle & joint aches, depression

and excessive menstrual bleeding as result/signs of the hypothyroidism, while depression and feeling cold were observed in some of the women respondents.

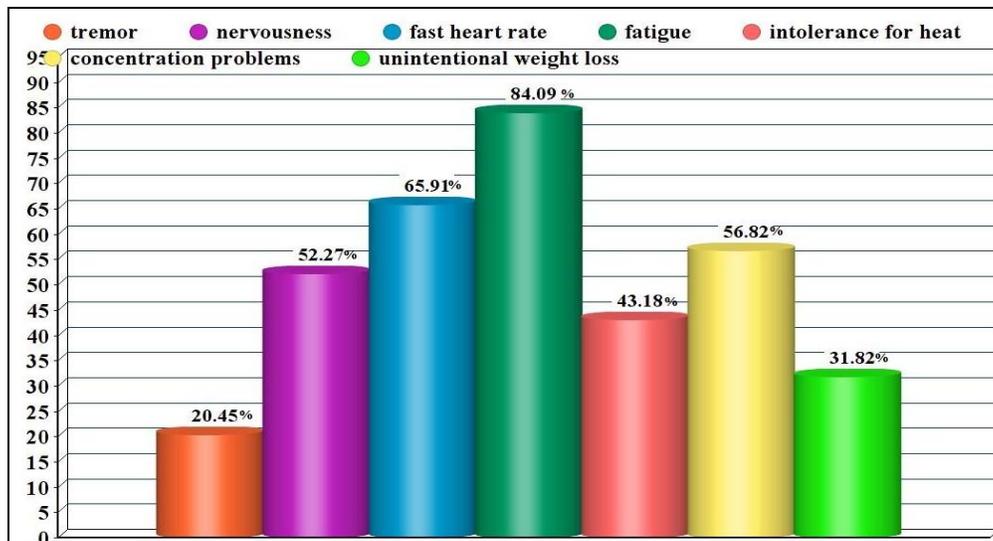


Fig 2: Signs & Symptoms of Hyperthyroidism in Respondents

It was found that the majority (84.09%) of the women were suffering from fatigue as results/signs of hyperthyroidism (figure – 3). More than half of the women were suffering from nervousness, fast heart rate and concentration problems, it

was observed in 52.27%, 65.91% and 56.82% respectively. Tremor was found in 20.45% of the women, while 31.82% of the hyperthyroidism women suffering from unintentional weight loss as an effect of hyperthyroidism.

Table 3: Awareness about nutrition and types of thyroid diseases

Aware	Hypothyroidism		Hyperthyroidism		Chi-square value	P-value
	n=61	%	n=44	%		
Yes	13	21.31	09	20.45	0.0113	.915218
No	48	78.69	35	79.55		

Significance level = 0.05 \*Significant at  $p < .05$

Table –3 revealed the data on awareness about nutrition and types of thyroid diseases. It was found that the 78.69% of the hypothyroidism women and 79.55% of the hyperthyroidism

women were not aware about nutrition. In present study it was statistically not significant ( $p=0.915218$ ).

**Table 4:** Consumption of iodine and types of thyroid diseases

Variables	Hypothyroidism		Hyperthyroidism		Chi-square value	P-value
	n=61	%	n=44	%		
Below RDA	33	54.10	15	34.09	4.5604	.102264
As per RDA	11	18.03	09	20.45		
Above RDA	17	27.89	20	45.45		
Significance level = 0.05 *Significant at $p < .05$						

Table-4 showed the relationship between consumption of Iodine and types of thyroid. According to the data in out of 61 women who were suffering from hypothyroidism, 33 (54.1%) of them were taken below RDA, 11 of them as per RDA, rest

17 women were taken above RDA. In hyperthyroidism, 34.09% of them taken below RDA, 20.45% & 45.45% were taken as per RDA & above RDA respectively. In present study it was found that the result was not significant at  $p < .05$ .

**Table 5:** Relationship between genetic history of respondents and thyroid diseases

Genetic history	Hypothyroidism		Hyperthyroidism		Chi-square value	P-value
	n=61	%	n=44	%		
Yes	46	75.41	37	84.09	1.1631	.280823
No	15	24.59	07	15.91		
Significance level = 0.05 *Significant at $p < .05$						

Table – 5 represented the data on relationship between genetic history and types of thyroid diseases. According to the data women, who were suffering from hypothyroidism majority of them (75.41%) had genetic history of thyroid diseases,

similarly in hyperthyroidism majority (84.09%) of them also had genetic history of thyroid. In present study it was statistically not significant ( $p = .280823$ ).

**Table 6:** Relationship between menopause and thyroid diseases

Variables	Hypothyroidism		Hyperthyroidism		Chi-square value	P-value
	n=61	%	n=44	%		
Pre menopause	49	80.33	27	61.36	4.5987	.031997*
Post menopause	12	19.67	17	38.64		
Significance level = 0.05 *Significant at $p < .05$						

Table -6 revealed the data on relationship between menopause and thyroid diseases, data revealed that there is highly association between menopause and types of thyroid diseases (The chi-square statistic is 4.5987 & the p-value is  $< .031997$ )

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**4. Conclusion**

Thyroid disease in women is an autoimmune disease that affects the thyroid in women, in present study it was found that hypothyroidism is more common than hyperthyroidism. According to the study finding there is highly significant association was observed between age, pregnancy and menopause with types of thyroid, while consumption of iodine, nutritional awareness and genetic history were not associated with the types of thyroid (the result were not significant at  $p < .05$ ) in Muzaffarpur district of Bihar.

**5. Recommendations**

The government should organized training programme to increase awareness about thyroid diseases especially in women.

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