

# Awareness of Causes, Consequences and Preventive Measures of Thyroid Disorder among Women in Punjab

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## Abstract

**Background and Objective:** Thyroid is very common disease now-a-days and women are more risk prone than men. Therefore, main objective of the present study is to examine the awareness of thyroid disorders among the women of Jalandhar, Punjab.

**Method:** Primary data was collected from 200 women of Jalandhar with the help of a well-structured questionnaire.

**Result:** The result of the study demonstrated that age and family history were the important factors which influence thyroid disorder among women. The study clearly depicted that majority of the respondents were not aware of the symptoms and preventive measures of Thyroid. Thyroid leads to a rise in goiter, stress and depression which requires prevention at the early stage.

**Conclusion:** The significant determinants of awareness of Thyroid were age, education, family history and its incidence. The study suggested that one should take prevention measures after observing the symptoms like sudden weight gain, excessive hair fall, voice change and sore throat.

**Key words:** *Thyroid Disorder, Hypothyroidism, Hyperthyroidism, Awareness, Incidence.*

## Introduction

Thyroid hormone disorder (THD) is a major health problem and related to a large range of diseases (Sijapati et al., 2019)<sup>1</sup>. Thyroid hormones are significant to the growth and development of a number of body tissues, and anthropometric factors are affected by thyroid disorders, such as hypothyroidism and thyrotoxicosis. An enlarged risk of thyroid cancer is among women with higher body mass index (BMI) or who had sudden weight gain (Bosetti et al., 2002)<sup>2</sup>. The body mass index of females were directly associated with thyroid cancer risk but

not in case of men. Furthermore, in one of those studies found that height was directly associated with thyroid cancer risk in men (Maso et al., 2000)<sup>3</sup>. According to Bagcchi (2014)<sup>4</sup> prevalence of hypothyroidism is 11 percent in India as compared to 2 percent in UK and 4-6 percent in USA. It is expected that approximately every third person in India will suffer from thyroid disorders viz. weight gain and hormonal changes (Economic Times, 2017)<sup>5</sup>.

Thyroid dysfunction, especially hypothyroidism, is more common in women (Alterio et al., 2007; Jung et al., 2018)<sup>6,7</sup>. Women who did not sense stress disorder signs were more expected to be elevated somatotype than women who sensed it (Jung et al., 2018)<sup>7</sup>. Skin is one of the organ which helps in observing a large number of the clinical symptoms. Hyperthyroidism symptoms which can be seen on skin includes warm,

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moist skin, palmo-plantar hyperhidrosis, facial flushing, skin pigmentation, pretibial myxedema, onycholysis, plummery nail etc. According to Ross et al. (2016, p.1343)<sup>8</sup>, “described evidence based clinical guidelines for the management of thyrotoxicosis that would be useful to generalist and subspecialty physicians and others providing care for patients with this condition”. Hypothyroidism symptoms of skin include dry coarse skin, hair loss, pruritus, hypohidrosis, yellow skin, brittle nails, loss of cuticle, vertical striations (Sijapati et al., 2019)<sup>1</sup>. Hypothyroidism if remains untreated or inadequately treated in pregnant women can compromise fetal neurocognitive development (Bagcchi, 2014)<sup>4</sup>.

Thyroid disorder has well-characterized deadly effects and can lead to severe on the cardiovascular system (Nyirenda, 2005; Jung et al., 2018)<sup>9,7</sup>. Iodine deficiency is one of the risk factor for goiter, thyroid nodularity and hyperthyroidism. Iodine-induced hyperthyroidism takes place more often in state of long-term iodine deficiency (Volzke et al., 2003; Zimmermann and Boelaert, 2015)<sup>10,11</sup>. Significant differences were found between both regions with a slight difference in iodine excretion (Knudsen et al., 2000)<sup>12</sup>. Usually, radioiodine has been used for the treatment of various forms of thyrotoxicosis like Graves’ disease, toxic nodular goiter and solitary toxic nodule for so many years. Over the time it is confirmed as a safe, effective and relatively reasonably priced therapy and significant differences in several aspects of clinical practice relating to the use of radioiodine treatment for benign thyroid disorders in the UK (Vaidya et al., 2008)<sup>13</sup>.

Thyroid has relation with diseases like depression and diabetes too. The relation between thyroid hormones and depression was brought up in the late 1960s in a clinical group (Ittermann et al., 2015)<sup>14</sup>. Thyroid diseases and diabetes mellitus are the two most common endocrine disorders came across in clinical practice. Diabetes and thyroid disorders have mutual influence on each other and relations between both conditions have long been reported (Hage et al., 2011)<sup>15</sup>. It is observed that if a person had goiter in past has more risk of thyroid cancer (Bosetti et al., 2002)<sup>2</sup>. According to Likhtarov et al., (2006)<sup>16</sup> the thyroid cancer frequency rate increased statistically significant with increasing screening rate. Cancer is the most common disease of the endocrine system and the eighth most common cancer among women (Ward et al., 2010)<sup>17</sup>. Thyroid generally remained

undetected and untreated among the Indian masses impaired the performance and economic productivity in the country. Considering various consequences of Thyroid disorder, it is required to study the awareness of causes, consequences and preventive measures of Thyroid disorders among the women in Jalandhar.

The study was organized into five sections. Section I introduces the various risk factors of Thyroid. The research methodology was extensively discussed in Section II of the present study. Section III, analyzed the empirical findings of the study. Section IV, concludes the whole discussion along with policy implications.

## Methodology

### Study design

The present study is descriptive, cross-sectional study in nature and conducted in the North Indian state of Punjab, where responses were collected with the help of a structured questionnaire. The data was collected from April 2018 to August 2018.

## Material and Method

In the study an attempt was made to examine the awareness of the preventive measures and risk factors of Thyroid. For the collection of data a structured questionnaire was drafted. A sample of 200 women was obtained from an urban city of Punjab, Jalandhar using convenience sampling approach. The analysis of the data was made with the descriptive statistics and Logit regression. The dependent variable was defined as “Aware of Thyroid” and measured as 1=aware of thyroid and 0 otherwise. However, independent variable consists of socio-economic variables.

### Empirical Analysis

Table 1 demonstrated that respondents were mainly of 18 to 25 years of age which was followed by age group of 25 to 35 years and below 18 years. Half of the respondents were post graduated and others were graduated, only few had done diploma. Majority of the respondents fell under the income group of ₹1 lakh to ₹2 which was followed by the income group of ₹2 lakh to ₹3 lakh category and then by up to ₹1 lakh category. Majority of the respondents were single, only 12 percent were married.

**Table: 1: Demographic Characteristics of the Respondents**

Characteristics (N=200)	N (%)
Age	
Below 18 years	14 (7)
18- 25 years	114(57)
25-35 years	72 (36)
Total	200 (100)
Education	
Diploma	6(3)
Graduate	94(47)
Post Graduate	100(50)
Total	200 (100)
Income	
Up to ₹1,00,000	16 (8)
₹1,00,000- ₹2,00,000	120(60)
₹2,00,000- ₹3,00,000	48 (24)
₹3,00,000- ₹4,00,000	10 (5)
₹4,00,000- ₹5,00,000	6 (3)
Total	200 (100)
Marital Status	
Single	176 (88)
Married	24 (12)
Total	200 (100)

**Source: Author's Calculation**

Table 2 exhibited the awareness of respondents regarding the symptoms and risk factors of thyroid. It was observed that out of 200 respondents, 22 percent were aware of weight gain, only 3 percent of them were aware of irregular menstrual cycle; 52 percent were aware of hair fall; 61 percent were aware of sore throat, joint pain and voice change and 69 percent were aware of infertility; 77 percent were aware of puffy skin or dry skin and 79 percent were aware of goiter as various symptoms of thyroid. It was observed that respondents were aware for risk factors as: only 4 percent were aware for gender and pregnancy; 15 percent were aware for

stress and 51 percent were aware for family history.

**Table: 2: Awareness of Symptoms and Risk Factors of Thyroid**

Awareness Regarding Symptoms		
Symptoms	Percent	
	Yes	No
Constipation/Diarrhea	12	88
Depression	11	89
Goiter (increased size of the thyroid)	79	21
Hair fall	52	48
Infertility	69	31
Irregular menstrual cycles	3	97
Skin problems	9	91
Sore throat, neck pain, joint pain	61	39
Thick puffy skin /or dry skin	77	23
Voice change	61	39
Weight gain	22	78
Awareness Regarding Risk Factors		
Variables	Percent	
	Yes	No
A diet low in iodine	25	75
Age	63	37
Family History	51	49
Gender	4	96
Not eating enough or eating certain vegetables	35	67
Obesity	48	52
Pregnancy	4	96
Smoking	15	85
Some foods that are high in goitrogens broccoli, cabbage, Brussels sprouts, cauliflower, radishes and turnips	69	31
Stress	35	65

**Source: Author's Calculation**

Table 3 demonstrated the incidence of thyroid disorder among the sampled respondents. Out of 200 respondents, 64 percent respondents had suffered from thyroid; 41 percent had family history of thyroid; and 52 percent did not know about the harmful effects of thyroid.

**Table: 3: Incidence of Thyroid**

Characteristics (N=200)	N (%)
Have you suffered from Thyroid?	
Yes	128 (64)
No	72 (36)
Total	200 (100)
Do you have family history of Thyroid?	
Yes	82 (41)
No	118 (59)
Total	200 (100)
Do you know about the harmful effects of Thyroid?	
Yes	96 (48)
No	104 (52)
Total	200 (100)

**Source: Author's Calculation**

Table 4, identified the various factors which influence the awareness of the women towards thyroid among the women with Logit regression. A significant association was observed between the age and awareness of thyroid among women. The regression coefficient clearly indicates that an inverse relationship was observed between the age and awareness. Thus, it can be

concluded that younger respondents were more aware of thyroid. However, education of the respondent was directly related to the awareness. This clearly predicts that probability of awareness of thyroid increases with increase in education. The respondents with family history were more aware of thyroid as compared to others. It was observed that incidence of thyroid also significantly impacts its awareness.

**Table: 4: Determinants of Awareness of Thyroid among Women**

Variable	Coefficient	Std. Error	Z-Statistic	Prob.
Age	-0.612*	0.332	-1.839	0.065
Education	0.844*	0.467	1.804	0.071
Income	0.010	0.178	-0.060	0.951
Marital Status	0.210	0.178	-0.060	0.958
Income	0.044	0.340	-0.131	0.895
Family History of Thyroid	0.728***	0.294	-2.470	0.013

**Cont... Table: 4: Determinants of Awareness of Thyroid among Women**

Suffered from Thyroid	0.505**	0.821	0.614	0.030
Constant	4.196***	1.575	2.662	0.007
Model Summary				
No of observations	200			
McFadden R-squared	0.109			
Log likelihood	82.59			

**Source: Author's Calculation**

\*\*\* Significant at 1 percent, \*\* Significant at 5 percent, \* Significant at 10 percent

Table 5 demonstrates the division of respondents based on healthcare utilization and access to a health facility. Majority of respondents used healthcare facilities for the treatment, whereas 30 percent respondents never visited any of the facility. Out of the total 90 respondents, 58 percent individuals utilized allopathic treatment facility which was followed by

homeopathic and ayurvedic treatment facility. People prefer private hospitals/clinics (63 percent) more than government ones (37 percent). 'No long queue' was the major determinant for which 38 percent respondents visited the private health facility. Also, the availability of specialized treatment and clean healthcare ambience were the prerequisites which intended individuals to choose the type of health facility. Free or low-cost treatment was the least opted reason for the choice of treatment facility amongst the individuals of Punjab.

**Table 5: Prevalence of Thyroid among Sampled Respondents**

Utilization Pattern	N= 128(%)
Utilized health care services	
Yes	90 (70)
No	38 (30)
Type of treatment you undertake (N=90)	
Allopathic	52 (58)
Homeopathic	21 (23)
Ayurvedic	14 (16)
Other	3 (3)
Type of health facility visited (N=90)	
Government Hospital	33 (37)
Private Hospital	22 (63)
Why this treatment? (N=90)	
Free or low cost treatment	4 (4)
Doctor was familiar	12 (13)
No long queues	34 (38)
Availability of specialized doctor/treatment	17 (19)
Cleanliness	23 (26)

**Source: Author's Calculation**

## Conclusion

The above discussion clearly demonstrated that the sampled women had a low awareness towards the risk factors and prevention strategies of Thyroid. Awareness of Thyroid is the pre-requisite for its prevention. Thereby, awareness of the symptoms and its prevention strategies should be spread through mass camps in the country. Awareness of the symptoms and risk factors of thyroid among the common masses will help in the early diagnosis and prevention of the serious complications of thyroid. There is a need of policy intervention across multiple sectors, from high-level policy changes to individual-level behavioral changes. Continued surveillance of thyroid is necessary to monitor and evaluate its implications and to plan the appropriate strategies.

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