

Knowledge of Thyroid Disorders among Women in a Rural Area, Chengalpattu District, Tamil Nadu: A Cross-Sectional Study

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Abstract: ***Background:** Hypothyroidism and Hyperthyroidism are common disorders of the thyroid gland. Hypothyroidism is approximately ten times more prevalent in women than men and it causes adverse effects during pregnancy. Health seeking behavior of women depends upon their knowledge of the disease. The objective of this study was to assess the knowledge and awareness of thyroid disorders among women and to determine the association between socio-demographic variables and knowledge score. **Methods:** A community-based, cross-sectional study was conducted among women in a rural area Pulipakkam, Chengalpet district, Tamil Nadu. A simple random sampling method was adopted to select participants for the sample size of 400. The participants were interviewed by using a semi-structured questionnaire. Knowledge score was assigned as 0 and 1 for incorrect and correct responses respectively. Data were analyzed using SPSS software 16v. **Results:** 53.75% of women had an inadequate score, 42.25% had a moderate score and adequate score accounts for 4% of women. The knowledge score was significantly associated with age group, education, socio-economic status, marital status, and women with a history of thyroid disorders. **Conclusion:** The level of knowledge of thyroid disorders was inadequate among women. Women should be aware of thyroid disorders as it causes adverse effects during pregnancy. Health education measures should be strengthened for creating awareness of thyroid disorders. It should be started early as in adolescent girls via Adolescent friendly health clinics.*

Keywords: Knowledge, Thyroid disorders, Women, Rural

1. Introduction

Thyroid hormones secreted by the Thyroid gland are responsible for growth, reproduction, neuronal development and regulation of energy metabolism.¹ The thyroid gland is a small butterfly-shaped gland in the neck, in front of the trachea.² The common conditions of thyroid disorders are hypothyroidism and hyperthyroidism meant low and excess thyroid hormones respectively.¹

Iodine is an integral component of thyroid hormones, known as the determinant of thyroid disease risk. But the global distribution of iodine is uneven, that some areas were iodine-rich, while others were iodine deficient. Worldwide more than a billion people live in an iodine-deficient area, the risk was higher among populations residing in remote mountain regions like Southeast Asia, South America and Central Africa.¹

The word goitre refers to the abnormal enlargement of the thyroid gland. Goitre is also known as Iodine deficiency disorder and Iodine deficiency is the most common cause of Goitre. It was estimated that more than 1.5 billion people in the world were at risk from iodine deficiency disorders out of which about 200 million people reside in India.² There were regional variations reported in India, with higher rates of hypothyroidism in the inland than in

coastal regions. Despite extensive universal salt iodization in India hypothyroidism presents as a substantial health problem. Hypothyroidism is approximately ten times more prevalent in women than men and it causes adverse effects during pregnancy.¹ The person can identify the symptoms if she has some knowledge of the disease.

Objectives:

- To assess the knowledge and awareness of thyroid disorders among women in a rural area
- To determine the association between socio-demographic variables and knowledge score.

2. Material and Methods

Study design:

A community-based cross-sectional study.

Study area:

Pulipakkam, a rural field practice area of Karpaga Vinayaga Institute of Medical Sciences and Research Centre, Chengalpet district, Tamil Nadu.

Study duration:

December 2020 to April 2021.

Study population:

Women aged 18 – 64 years who were willing to participate in this study.

Sample size:

The sample size was calculated by Rai S et al⁵ study based on 54.8% awareness of Thyroid among women in a rural area, Indore city, central India. The sample size was calculated to be 400 by using the formula $4pq/d^2$ with a 5% level of significance.

Sampling method:

Simple random sampling. Sampling frame was prepared by using family folders which is maintained by Rural Health and Training Centre, Pulipakkam. The participants were selected randomly using sampling frame.

Data collection:

A pre-tested, semi-structured questionnaire was used to interview the participants after getting written consent from them. House to house visit made to enquire the participants. If the participant was not available during the visit, she was excluded from the study. The questionnaire consists of questions related to the socio-demographic profile of the participants and knowledge of thyroid disorders.

Variables:

The dependent variable was knowledge score and the independent variables were age group, education, occupation, socio economic status, religion, marital status and history of thyroid disorders. The knowledge score was assessed by correct and incorrect responses to every question and scored 1 and 0 respectively. The questions used to assess were aware of Thyroid disorders, know who was susceptible to disease, know the cause of thyroid disorders (by autoimmune, genetic, iodine deficiency), know if the disease can be transmitted, know any of the symptoms (menstrual problems, weight gain/loss, constipation/diarrhea, cold/heat intolerance, weakness, palpitation, neck swelling), can be thyroid disorders curable, the thyroid test, Is there any complications during pregnancy, can thyroid disorders prevented and iodized salt used for prevention. The knowledge score was categorized as adequate score (> 8), moderate score (4 – 8) and inadequate score (< 4) for the total score of 10.

Data analysis:

Data were entered in Microsoft Excel 2013 and analyzed with Statistical Package of Social Sciences (SPSS) software version 16. Continuous variables and Categorical variables were expressed as mean and standard deviation and percentages respectively. The association between

knowledge score and socio-demographic variables was assessed by the Chi-square test. A p-value of less than 0.05 was considered significant.

Ethical issues:

The ethical clearance was accessed from Institutional Ethics Committee, Karpaga Vinayaga Institute of Medical Sciences and Research Centre, Madhuranthagam.

Table 1: Socio-Demographic Profile of Participants

S No	Variables	Frequency (N = 400)	Percentage (%)
1	Age (in years)	15 - 25	21.5
		26 - 35	26.25
		36 - 45	49.75
		46 - 55	2.5
2	Education	Illiterate	5.5
		Primary	22.5
		Middle	13.25
		Higher secondary	48
		Graduates	10.75
3	Occupation	Homemaker	78.75
		Working population	21.25
4	Marital status	Unmarried	12.75
		Married	85.25
		Separated/widower	2
5	Socio economic status	Upper	2
		Upper middle	20.5
		Middle	46.5
		Lower middle	18.5
		Lower	12.5
6	Religion	Hindu	93.75
		Christian	6.25
7	History of thyroid disorders	Yes	9.75
		No	90.25
8	Family history of thyroid disorders	Yes	11.75
		No	88.25

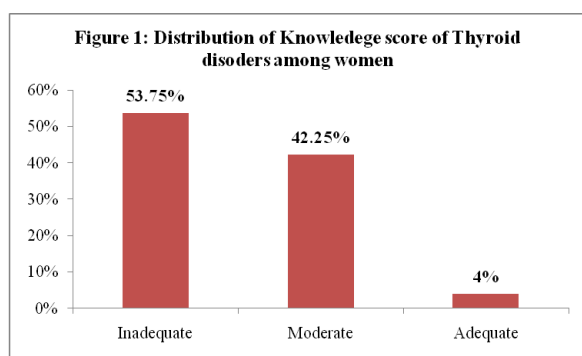
3. Results

This study was conducted to assess knowledge of thyroid disorders and to determine the association between knowledge score and socio-demographic determinants. The participants were women aged 15 – 55 years. The mean age of participants in years was 34.74 ± 9.17 . Table 1 shows the socio-demographic profile of the participants. Most of them included in the study were 36 – 45 years women. The literates comprised 94.5% of participants. Among them, two-thirds of the population was homemaker and others were working and student population. The majority of the women belonged to the Hindu religion. The maximum participants were belonged to middle-class socioeconomic status based on the modified BG Prasad socioeconomic status scale 2020.

Among 400 participants, 56.25% of women were aware of thyroid disorders. About half of them knew about thyroid disorders can be curable (54.75%) and complications

during pregnancy (52.25%). 49.25% of them had some knowledge about symptoms of thyroid disorders and 40.75% of them were aware of thyroid disorders can be prevented. 31.75% of them know that women were more susceptible to thyroid disorders. One-fourth of participants knew that blood will be tested for thyroid disorders (26.5%) and iodized salt used for prevention (25.25%). Only 9.25% and 3.25% of participants were familiar with thyroid disorders that cannot be transmitted and the causes of thyroid disorders. The knowledge score was classified according to the correct and incorrect responses given by the participants by the interview method. The score of knowledge was categorized into adequate (> 8), moderate (4 - 8) and inadequate (< 4) of the total score of 10.

215 (53.75%) of participants had an inadequate score, 169 (42.25%) of them had a moderate score and 16 (4%) of them had an adequate score.

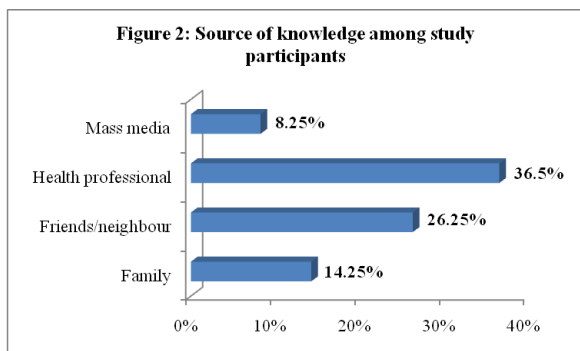


The association between variables like age group, education, socioeconomic status, marital status, religion, history of thyroid disorders and family history of thyroid disorders with knowledge score was found to be statistically significant. The age group of 36 – 45 years women had an inadequate score and 15 -25 years women had an adequate score which was significant (χ^2 value - 20.1735, p-value – 0.0025). The knowledge score was significantly inadequate among illiterate and adequate among graduates (χ^2 value - 98.6802, p-value - 0.00001). There was no difference in knowledge scores among homemaker and working women (χ^2 value - 3.1143, p-value - 0.210). The upper socio-economic status participants had adequate knowledge scores and lower socio-economic status participants had inadequate knowledge scores which was found to be significant statistically. (χ^2 value - 72.5351, p-value - 0.00001). The significant knowledge scores of unmarried women were inadequate and separated/ widower women were adequate. (χ^2 value - 14.548, p-value- 0.005). Inadequate knowledge score was seen among Hindus and adequate scores were seen among Christians which was found to be significant (χ^2 value - 14.0829, p-value - 0.000875). A higher proportion of participants with a known cause of thyroid disorders had adequate knowledge scores. (χ^2 value 112.8721, p-value - 0.00001). The participants having a family history of thyroid disorders also had adequate knowledge scores. (χ^2 value - 94.9575 p-value - 0.00001).

Table 2: Association between Knowledge scores of thyroid disorders and socio-demographic characteristics

S no	Variables	Inadequate	Moderate	Adequate	χ^2 test, p value
Age group (in years)					
1	15 – 25	40 (46.51%)	38 (44.18%)	8 (9.3%)	20.1735, 0.0025*
2	26 – 35	49 (46.66%)	55 (52.38%)	1 (0.95%)	
3	36 – 45	118 (59.29%)	75 (37.68%)	6 (3.01%)	
4	46 – 55	8 (80%)	1 (10%)	1 (0.25%)	
Education					
1	Illiterate	20 (90.9%)	1 (4.54%)	1 (4.54%)	98.6802, 0.00001
2	Primary	75 (83.33%)	14 (15.55%)	1 (1.11%)	
3	Middle	29 (54.71%)	23 (43.39%)	1 (1.88%)	
4	Higher secondary	88 (45.83%)	99 (51.56%)	5 (2.6%)	
5	Graduates	3 (6.97%)	32 (74.41%)	8 (18.6%)	
Occupation					
1	Home maker	176 (55.87%)	128 (40.63%)	11 (3.49%)	3.1143
2	Working population	39 (35.88%)	41 (48.23%)	5 (5.88%)	0.210
Socioeconomic status					
1	Upper	4 (50%)	1 (12.5%)	3 (37.5%)	72.5351 0.00001
2	Upper middle	32 (39.04%)	47 (57.31%)	3(3.65%)	
3	Middle	87 (46.77%)	95 (51.07%)	4(2.15%)	
4	Lower middle	46 (62.16%)	24 (32.43%)	4(5.4%)	
5	Lower	46 (92%)	2 (4%)	2 (4%)	
Marital status					
1	Unmarried	31 (60.78%)	16(31.37%)	4 (7.84%)	14.5487 0.005
2	Married	180 (52.78%)	151(44.11%)	10 (2.93%)	
3	Separated/widower	4 (50%)	2 (25%)	2 (25%)	
Religion					
1	Hindu	208 (55.46%)	155 (41.33%)	12 (3.2%)	14.0829
2	Christian	7 (28%)	14 (56%)	4 (16%)	0.000875

Figure 2 describes the source of information of participants. The major source of information was from a health professional (36.25%) followed by friends/ neighbour (26.25%), family (14.25%) and mass media (8.25%).



4. Discussion

This study shows that the knowledge score was inadequate among women aged 15 – 55 years. A study by Almuzaini A S et al⁵, conducted in Saudi Arabia illustrated that 42.68% had poor knowledge which was lower than this present study (53.75%). The variables like age, sex, education, and occupation had no significant effect on the knowledge level of the respondent. This variation may be because the population included in this study had a high proportion of literate respondents. 30.9% of respondents answered that iodine was used in the prevention of hypothyroidism in the study by Alotaibi A M D et al⁶, conducted in Saudi Arabia. This was near similar to our study.

Singh DR et al⁷ study among Nepalese women described that about 49% of women had inadequate knowledge which was marginally similar to our study. The knowledge score of thyroid disorders was significantly lower among illiterate and higher among university education, family history of thyroid disorders which was identical to our study.

A study done in Maharashtra by Lingaji T et al⁸ among hypothyroid patients revealed that most of the participants had correct knowledge about the symptoms (66%) of hypothyroidism. This was lower compared to our study (49.25%) can be due to population variation.

Konwar G et al⁹ study conducted in Assam reported that 90% of women had inadequate knowledge which was higher than this study (53.75%). Among the participants, only 25% were aware of symptoms. This contrasting result implies that the women in this study had better knowledge than Konwar G et al study.

Rai S et al⁴ study conducted in Indore city showed that around 50% of females knew terminologies associated with thyroid disorder which was similar to this study.

A study conducted in India by Senthil B et al¹⁰, also reported that most patients (66.6%) had a low level of knowledge, and only a few had high awareness (12%) which was relatively similar to this study results. The low level of knowledge was significantly more in the age group of 41–50 years and also a significant association between education levels and knowledge which was the same as this study results.

This present study results were similar to Goel A et al¹¹ study conducted at Bengaluru among hypothyroid patients that 28.2% of respondents had the belief that intake of iodine salt can cure thyroid problems. A Study by Muthukumar A et al¹², at Saveetha Dental College, showed that 83% were aware of thyroid disorders which was in contrast to our study results. This variation may be due to facility-based population.

5. Conclusion

The level of knowledge of thyroid disorders was inadequate among women. Women should be aware of thyroid disorders because of their adverse effects during pregnancy. Health education measures should be strengthened for creating awareness of thyroid disorders. This can be employed in adolescent-friendly health clinics. Specific protection measures as the promotion of fortified salt with iodine may be necessary for the prevention of thyroid disorders should be promoted in mass media.

6. Limitation

The knowledge of women might be assessed by a large sample size, but this study included a small sample size.

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Declarations

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