

## EVALUATION OF KNOWLEDGE, ATTITUDE, AND PRACTICES AMONG HYPOTHYROID FEMALE PATIENTS IN A TERTIARY CARE HOSPITAL

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### ABSTRACT

**Objective:** Hypothyroidism is the most prevalent thyroid disorder globally. Women are more likely to have thyroid disorders than men. There is a dearth of data on Indian women with hypothyroidism regarding their knowledge, attitude, and practices (KAP). Therefore, this study aimed to evaluate Indian hypothyroid women based on their KAP.

**Methods:** Hypothyroid women who are  $\geq 18$  years old participated in the study. It was planned to be carried out in a tertiary care hospital, in South India. This strategic cross sectional study was assessed using the KAP-33 questionnaire.

**Results:** The present study showed that age  $< 30$  years was predominant and was associated with a significant effect ( $p < 0.01$ ) on knowledge, attitude, and practice. Knowledge level was not significantly associated with scholastic level ( $p > 0.05$ ), work status ( $p > 0.05$ ), or region ( $p > 0.05$ ). Age and marital status were strongly associated with the level of KAP about hypothyroidism, and the family history of thyroid disorder, occupational status, area of living, and number of comorbidities were significantly associated with the level of attitude and practice and non-significant association with knowledge. Educational level showed no significant association with knowledge, attitude, and practice regarding hypothyroidism.

**Conclusion:** Educated patients surprisingly found that they lacked knowledge regarding thyroid disorders, and younger women ( $< 30$  years) had more knowledge about hypothyroidism.

**Keywords:** Hypothyroidism, Knowledge, attitudes, and practices questionnaire, Thyroid disorder.

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### INTRODUCTION

Thyroid diseases are among the most widespread endocrine conditions globally. Hypothyroidism, which affects one in ten adults in India and is thought to affect 42 million people, is the most prevalent thyroid disorder [1,2]. In India, 11% of people have hypothyroidism compared to 2% in the UK and 4.6% in the USA [3,4]. Female gender is more likely than men to have both hypothyroidism and hyperthyroidism [5-7]. Hypothyroidism in young women has been associated with infertility, polycystic ovaries, and irregular menstrual cycles [8,9]. Age, sex, location, and iodine intake are variables that affect the prevalence of thyroid problems, and other environmental variables may contribute to hypothyroidism in India [10-13].

The clinical signs and symptoms of a thyroid disorder can affect several physiological systems and largely rely on the nature of the disorder. Furthermore, thyroid issues can be readily ignored or misinterpreted for other diseased states because the majority of symptoms are not specific. Many persons with thyroid dysfunction, but who are unaware of their condition, can benefit from knowledge about the condition. Patients who are undiagnosed typically lack awareness and understanding of the signs and symptoms of the thyroid gland [14]. Furthermore, some women with hypothyroidism are asymptomatic and unlikely to exhibit any clinical symptoms [15,16].

The treatment of the disease state is influenced by patients' knowledge and attitudes, which helps to improve drug compliance, morbidity, and mortality. The first stage of developing a disease prevention program is to determine how much people are aware of their condition [17]. Individual attitudes, social variables, and a lack of health-related knowledge influence healthcare-seeking behavior [18]. To improve early identification, proper intervention, and treatment goals or improve management, it is essential to have awareness and an adequate

understanding of diseases [19-21]. Advances in knowledge and skills are crucial social constructs that change behavior and result in favorable health outcomes [22]. Questionnaires on knowledge, attitudes, and practices (KAPs) can be used to assess certain programs. The first step in developing a disease-prevention strategy is to raise awareness [23]. The results of KAP research may appear easy to understand, yet they can have a significant impact on the neighborhood. The findings of the KAP study further generate reference values for a range of healthcare parameters that can be used in future analyses [24]. Indian women lack sufficient KAP of hypothyroidism. This study aimed to evaluate the KAP level of Indian women with hypothyroidism.

### METHODS

#### Study design

A prospective cross-sectional study for a period of 1 year (October 2021–September 2022) was conducted in a hospital which was categorized under tertiary care in Southern India.

#### Ethical consideration

The study commenced with approval from the institutional ethical committee of the Karpagam Faculty of Medical Sciences and Research (Ref: IHEC/222/10/2021). The participating patients provided informed consent.

#### Inclusion criteria

Women with hypothyroidism and  $\geq 18$  years of age undergoing hypothyroid therapy.

#### Exclusive criteria

Children and infants, male hypothyroid patients, hyperthyroid patients, and patients with congenital abnormalities.

# Sample size

The study population included 327 patients who underwent hypothyroid therapy in the general medicine outpatient care department at the Karpagam Faculty of Medical Sciences and Research.

# Research instruments

Informed consent was obtained from the study participants, and the KAP-33 questionnaire was used to assess KAP levels.

# Study procedure

A pre-designed data entry form was used to collect demographic variables, such as age, marital status, educational level, area of living, family history, duration of hypothyroidism, and comorbidities. Acquisition of the questionnaire coined by Shanmugam *et al.* on the KAP-33 was completed after communication. The KAP-33 questionnaire is divided into 20 questions in the knowledge category related to diagnosis, symptoms, risk factors, and therapy for hypothyroidism (patients' knowledge of hypothyroidism), 5 questions in the attitude category such as patients toward disease and treatment (attitude toward hypothyroidism), and 8 questions in the practice category, such as adherence to practice (practice regarding hypothyroidism). Questions in the knowledge and practice parts were designed as open-ended rhetorical questions, whereas questions in the attitude component were worded as affirmatives.

# Scoring of KAP questionnaire

- The positive knowledge statements were answered as "Yes" and valued as 1 and "No" for negative statements were marked as 0 points, which was an incorrect answer. If the answer response was "Don't know" was given 0 point. Review score "low level" ( $\leq 12$  points), "midpoint" (13–15 points), or "highest level" ( $\geq 16$  points) as per the total score
- The attitude, the level marked as ("extremely anxious") if point 4 or 5 on the Likert scale was marked for all 5 statements, and if correct response 3–4 statements, remarked as for ("quite anxious"). The level considered as ("little anxious"), if correct response for 1–2 statements, and not responded as "non-anxious"
- In the measurement of practice score, implementation by the patient was marked (total score ranged from 0 to 8 points). A "highest level" of implementing practice was recorded when a score of  $\geq 7$  points, a "midpoint of the level" of practice level, if the score was between 4 and 6 points, and a convention of "indigent level" if 3 points and  $< 3$  points.

# Statistical analysis

Categorical variables were analyzed using incidence (n) and proportions (%), and constant variables were consolidated using eloquent statistics. The Statistical and analytical results were achieved using the Chi-square/Fisher test with a significance level of 0.05 [25].

# RESULTS

A total of 327 women with hypothyroidism were included in the study according to the inclusion criteria of baseline characteristics, such as age, comorbidities, educational status, and employment status, as shown in Table 1. It was summarized that 48.6% of the patients were aged  $< 30$  years, 60.5% were married, 63.3% were unemployed, 65.7% had a family history of thyroid disorders, 63.6% had urban areas, 68.5% had  $\leq 2$  comorbidities, and 57.8% had a degree or diploma.

The results in Table 2 show that women aged 31–60 years of age were significantly associated with poor levels of knowledge ( $p < 0.001$ ), a low level of attitude ( $p < 0.001$ ), and poor measure of practice ( $p < 0.001$ ) about hypothyroidism. A statistically higher number of patients in married women had implications related to a poor level of knowledge ( $p < 0.001$ ), low level of attitude ( $p < 0.001$ ), and poor extent of practice about hypothyroidism ( $p < 0.001$ ). Women with unemployment showed a statistically significant association with a low level of attitude ( $p < 0.001$ ) and poor extent of practice regarding hypothyroidism ( $p < 0.001$ ). Women with no family history of thyroid

**Table 1: Information about the research population's sociodemographics**

S. No.	Parameters	Frequency (n) (%)
1	Age	
	<30	159 (48.6)
	31–60	134 (41)
	>61	34 (10.4)
2	Marital status	
	Married	198 (60.5)
	Unmarried/widow/divorced	129 (39.4)
3	Employment status	
	Employed	120 (36.7)
	Unemployed	207 (63.3)
4	F/h of thyroid disorder	
	Yes	215 (65.7)
	No	112 (34.2)
5	Area of living	
	Urban	208 (63.6)
	Rural	119 (36.3)
6	No. of comorbidity	
	$\leq 2$	224 (68.5)
	$> 2$	103 (31.5)
7	Educational level	
	Illiterate	24 (7.3)
	Primary	114 (34.9)
	Diploma/UG/PG	189 (57.8)

disorder showed a significant association with extremely high levels of attitude ( $p < 0.001$ ) and moderate and good levels of practice regarding hypothyroidism ( $p < 0.001$ ). A significantly higher number of patients in married women showed a significant association with a poor level of knowledge ( $p < 0.001$ ), low level of attitude ( $p < 0.001$ ), and poor practice of hypothyroidism ( $p < 0.001$ ).

Women with hypothyroidism and urban areas showed significant associations with extremely high levels of attitude ( $p < 0.001$ ) and moderate and good levels of practice about hypothyroidism ( $p < 0.001$ ) compared to patients living in rural areas. A higher number of women with hypothyroidism tended to have less knowledge despite the number of comorbidities ( $\leq 2$ ). Significant associations were observed with extremely high levels of attitude ( $p < 0.001$ ) and moderate and good levels of practice about hypothyroidism ( $p < 0.001$ ) when compared with patients living with  $> 2$  comorbidities. There was no statistically significant association between educational level ( $p > 0.05$ ) and knowledge ( $p > 0.267$ ), attitude ( $p > 0.746$ ), practice ( $p > 0.299$ ), or hypothyroidism. Surprisingly, educated women showed a poor level of knowledge and attitude toward hypothyroidism.

The age group of 31–60 years and married women were statistically associated with a poor level of knowledge, attitude, and practice about hypothyroidism, and unemployed women showed a low degree of attitude and a poor degree of practice. Women living in rural areas showed significant results related to a low level of attitude and a poor degree of practice, and women with a family history of thyroid disorder showed extremely and quite a level of attitude and a moderate and high level of practice. Educational level showed no significant association with knowledge, attitude, and practice regarding hypothyroidism. The frequency of KAP levels among the study population is shown in Fig. 1.

# DISCUSSION

The prevalence of hypothyroidism has been increasing worldwide [26]. Hypothyroid dysfunction in women is the most dominant type influence 4–5% of established territories. It is one of the leading characteristic thyroid disorders affecting one-tenth of Indians [27]. In our study, age  $< 30$  years was predominant and associated with a significant effect on knowledge, attitude, and practice. The extent of knowledge was not significantly correlated with scholastic level ( $p = 0.2670$ ), placement position ( $p = 0.1480$ ), and region

Table 2: Frequency of patients according to KAP related to hypothyroidism

Parameters	Knowledge		p-value*	Attitude		p-value	Practice		p-value*
	Moderate and good (133)	Poor (194)		Extremely and quite (167)	Little (160)		Moderate and high (191)	Poor (136)	
Age									
<30	80	79	0.001	101	58	0.001	121	38	0.001
31–60	49	85		51	83		58	76	
>61	04	30		15	19		12	22	
Marital status									
Married	65	133	0.001	87	111	0.001	96	102	0.001
Unmarried/widow/divorced	68	61		80	49		95	34	
Employment status									
Employed	55	65	0.1480	89	31	0.001	92	28	0.001
unemployed	78	129		78	129		99	108	
Family history of thyroid disorder									
No	81	134	0.1261	137	78	0.001	152	63	0.001
Yes	52	60		30	82		39	73	
Area of living									
Urban	86	122	0.7431	146	62	0.001	145	63	0.001
Rural	47	72		21	98		46	73	
No. of comorbidity									
≤2	90	134	0.788	142	82	0.001	170	54	0.001
>2	43	60		25	78		21	82	
Educational level									
Illiterate	06	18	0.267	11	13	0.746	12	12	0.299
Primary	48	66		61	53		62	52	
Diplomo/UG/PG	79	110		95	94		117	72	

\*The p-values indicate the significance of the association between demographic and clinical factors with knowledge, attitude, and practice outcomes in hypothyroid female patients. A  $p < 0.05$  is considered statistically significant.

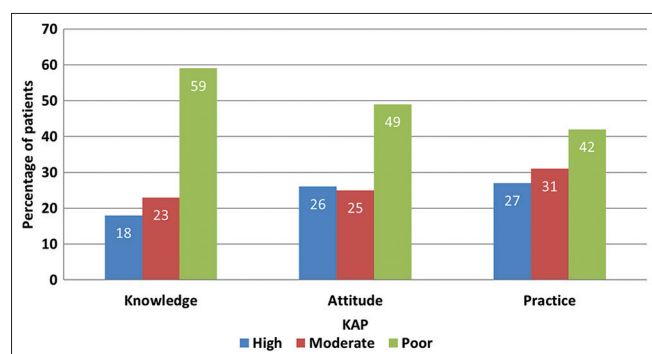


Fig. 1: Frequency of knowledge, attitude, and practices level among the study population

( $p=0.7431$ ). In a previous study, Almuzaini *et al.* (2019) showed that knowledge was irrelevant to the appellants' gender, age, scholastic, and working status ( $p > 0.05$ ) [28]. Women aged 36–50 years were found to have poor knowledge of the differences between hypothyroidism and hyperthyroidism [28].

A previous study showed that there was no correlation between knowledge and marital status, employment status, and locality of stay, and a high level of knowledge was found to be predominant in educated people with a bachelor's or graduate degree [29].

Our study showed that educational level was not significantly associated with knowledge, attitude, and practice. However, a previous study showed that there is an implication of a link between education levels and knowledge. Undergraduate (76.9%) and postgraduate (34.6%) students had higher proportions of low and high knowledge levels, respectively. Degree of concern and educational attainment were significantly correlated. Most postgraduates (60.5%) and a significant number of undergraduates (50.2%) were both somewhat alarmed about hypothyroidism [30]. The results of the study showed that most participants had a college degree or

higher education (53.6%). The preponderance of female patients has limited understanding and cognizance of the hypothyroidism test [31].

The participants in a research study found that the knowledge level about thyroid disorders was fairly inadequate. The first step in improving health is raising awareness of the thyroid and many disorders that have an impact on it [32]. The results of our study showed that the study population had low awareness of thyroid illnesses and those that were related to them. Continuing education programs on novel management strategies on thyroid disorders have to be updated to all healthcare professionals, doctors, decision makers, and recent updates to be dealt to the students in the medical profession [32,33].

## Limitations

### Single center study

The results may not be applicable to other parts of India or other healthcare facilities since this research only took place in one tertiary care institution in the southern area.

### Exclusion of male patients

This study focused exclusively on female hypothyroid patients. This limits the applicability of the findings to the male population, as KAP related to hypothyroidism may differ between sexes.

### Self-reported data

Participants' memories, social desirability bias, and underreporting of specific behaviors were all potential issues with the self-reported data used in the research.

### Cross-sectional study design

The study's cross-sectional design allows for a moment in time to capture KAP. A longitudinal study design would allow for the assessment of changes or trends in these factors over time, providing a more comprehensive understanding of the evolution of KAP among patients with hypothyroidism.

## CONCLUSION

KAP regarding specific diseases is important for each patient. Women lack KAP due to the paucity of propaganda and transmission when compared to men. Educated women were found to be amazing with a poor knowledge level. Young female patients (<30 years of age) had more knowledge of hypothyroidism. This study recommends that future studies on hypothyroidism should focus on clear and improved public health strategies. There is a need to implement continuous and extensive awareness campaigns and create innovative instruments and instructional techniques that enhance conformity with patient practices.

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## AUTHOR'S CONTRIBUTION

Conceptualization; Data curation; Formal analysis; Investigation; Methodology; Project administration; Resources; Software; Supervision; Validation; Visualization; Writing-original draft; Writing-review and editing by I. Mufida Begum and D. Kumudha.

## CONFLICT OF INTEREST

Authors declared that there is no conflict of interest exist.

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