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Research Article

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A Cross-Sectional Survey to Assess Knowledge, Attitude, and Practices in Patients with Hypothyroidism in Riyadh, Saudi Arabia

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ABSTRACT

Background: *Without corrective action, patients suffering from hypothyroidism may exhibit increased risk of cardiovascular diseases, dysrhythmias and fractures, and are also at risk of adverse effects on bone mass, lipid metabolism, blood pressure, and a declined cognitive function.* ***Methods:*** *We adopted a cross-sectional survey to assess the knowledge, attitude, and practices in patients with hypothyroidism in Riyadh, Saudi Arabia. Participants for the study were recruited from 04/08/2019 till 24/09/2019 through convenience sampling method. For an individual to participate in the study, they were required to be 18 years of age and diagnosed with hypothyroidism, a Saudi citizen and a resident of Riyadh. The participants were assessed on a number of indicators; demographics, questions on knowledge domain, questions on attitude domain, and questions on practice domain. In our construct, the knowledge section consisted of 20 factual statements to assess various indicators of hypothyroidism, including the symptoms, risk factors, diagnosis, and treatment.* ***Results:*** *55% of the respondents were female and 45% were male. The study indicates that hypothyroidism occurs at a higher prevalence in females in the 45+ age category, which is consistent with previous literature. Equally, 24% of the respondents strongly disagree that women are at a greater risk of developing hypothyroidism and should be tested at regular intervals for hypothyroidism; while, 19% of the respondents agree that women are at a greater risk of developing hypothyroidism and should be tested at regular intervals for hypothyroidism. The findings indicate a worrying lack of knowledge about hypothyroidism among residents of Riyadh.* ***Conclusion:*** *There is a need for greater public education and awareness in Saudi Arabia to improve the level of knowledge about hypothyroidism.*

Key words: *hypothyroidism, convenience sampling, thyroid-stimulating hormone.*

INTRODUCTION

Hypothyroidism is a prevalent medical condition caused by insufficient thyroid hormone production. The condition is prevalent in developing countries, including India, and is largely influenced by the level of iodine in diet [1-7]. The condition further occurs disproportionately in other countries such as England where levothyroxine, a synthetic isomer is used in its treatment and is dispended to 99.7% of the patients suffering from the condition [1]. Dose increments is often made, following the initiation of treatment to return thyroid-stimulating hormone (TSH) levels into the reference range and to provide symptomatic relief. Without corrective action, patients suffering from the condition, or patients with abnormal thyroid results may exhibit increased risk of cardiovascular diseases, dysrhythmias and fractures, and are also at risk of adverse effects on bone mass, lipid metabolism, blood pressure, and a declined cognitive function.

Previous studies have investigated the prevalence of hypothyroidism in Saudi Arabia. For instance, a study conducted in Makah, Saudi Arabia on the prevalence of hypothyroidism showed that of 261 females, 142 of them exhibited signs of hypothyroidism and 119 of the females had hyperthyroidism. Another study on the risk factors for thyroid dysfunction among Type 2 diabetic patients in Saudi Arabia indicated that the prevalence of different types of thyroid dysfunction was 28.5%, with 25.3% having hypothyroidism, where 15.3%, 9.5%, clinical and subclinical hypothyroidism, respectively. The study showed a 3.2% prevalence of hyperthyroidism [4]. In a previous study, the researchers showed an increased incidence rates of thyroid dysfunctions among Saudi females [3]. The high prevalence among this patient demographics indicates the need for early screening and management of the condition [8]. However, a considerable inconsistency of the previous studies is the fact that most of them have often used small sample sizes, affecting their external validity.

The manifestation of the condition varies considerably, often with location. Various studies indicate that the manifestation of the condition is principally considered by the presence of iodine in diet. The prevalence of hypothyroidism, the most prevalent of the thyroid dysfunction in the developed world is 4.5%, with the condition higher in countries with reduced iodine content in foods [5, 8]. For instance, in India, approximately 42 million people suffer from the condition [5]. The disproportionate high prevalence of the condition in the Indian sub-population arises from a number of factors, including the lack of qualified physicians for treating such patients, poor knowledge and reliable information about the condition, poor public health awareness campaigns, and less time spent by doctors on patient education. Considering the latter, there is a need for an increased sensitization of the public about hypothyroidism and its associated effects, including prognosis and pathology.

Assessment of other scholarly works indicate the need for much greater education and sensitization in diseased population. However, poor literacy has been a problem to public sensitization, especially in developing economies. In global scales, thyroid disorders continue to be a common yet under-diagnosed [3, 5]. This largely results from reduced attention given to the condition and the general lack of information from the public. Evidence indicates that neglected hypothyroidism could cause life-threatening myxedema coma. However, patients showing overt hypothyroidism could experience low energy levels, aching, weight gain and noticeable change in physical appearance. Managing the condition is often conducted in primary care, and up to and until 2014, general practitioners played an integral role in the management of the condition. Hypothyroidism is perceived as a simple condition to manage, with majority of patients well tolerant to levothyroxine. However, the therapeutic benefits of the regimen are sometimes considered unsatisfactory, and higher TSH levels than the preference range (11-27%) have been noted in patients receiving thyroid replacement treatments [3].

Studies show that the condition has a considerable impact on the health and wellbeing [1, 4, 9]. On a global scale, the condition is one of the most prevalent, yet the most underdiagnosed and neglected chronic health concern. In our study, we figured out that patient's knowledge and awareness of the condition and its treatment is highly necessary, especially for long term care and compliance with requirements. Previous studies have shown the importance of improving the knowledge of patient's through increased education and awareness as benefits to improving compliance with health-care appointments and medications for patients with hypertension and diabetes; however, such data is scare when considering hypothyroidism or some of the thyroid conditions [3, 5, 7]. Conducting such studies on hypothyroidism can play a great role in helping physicians concentrate on specific issues during the first interaction with patients and follow-ups. There is a considerable paucity in data regarding the knowledge, awareness and practices (KAP) among primary hypothyroidism patients in Saudi Arabia. The objective of this study is to asses KAP and adherence to treatment by patient who have been diagnosed with hypothyroidism.

METHODS

We adopted a cross-sectional survey to assess the knowledge, attitude, and practices in patients with hypothyroidism in Riyadh, Saudi Arabia. Participants for the study were recruited from 04/08/2019 till 24/09/2019 through convenience sampling. Convenience sampling was adopted to increase the number of participants for the study and randomness. The questionnaire was distributed in hardcopy to the participants in an endocrinology outpatient clinic in 11 hospitals in Riyadh, Saudi Arabia. The questionnaire data was then transferred to excel and then to SPSS version 10 for statistical analysis.

Inclusion and Exclusion criteria

For an individual to participate in the study, they were required to be 18 years of age and diagnosed with hypothyroidism, a Saudi citizen and a resident of Riyadh. Consideration was given to people over 18 years of age as it was easy to get their informed consents for the study. Hypothyroidism disproportionately presents in the adult patient population, and therefore, the age was justified for accuracy. While the extant literature has indicated that the condition occurs disproportionately in women, especially of age greater than 30, the study was not specific to this population as the aim was to understand the prevalence of the condition in the general Saudi population residing in Riyadh. Only the patients who could read and write were included in the study. The patients who were unable to provide important information as required by the questionnaire were excluded from this study.

Survey Questions

The participants were assessed on a number of indicators; demographics, questions on knowledge domain, questions on attitude domain, and questions on practice domain. In our construct, the knowledge section consisted of 20 factual statements to assess various indicators of hypothyroidism, including the symptoms, risk factors, diagnosis, and treatment. The responses were captured through two options, in a yes and know response. The shortened response mechanism was chosen to increase the response rate and to ensure that the participants spent the least amount of time on each of the questions. In the attitude segment of the research, 5 questions were administered to the patients to validate a range of response on attitude towards hypothyroidism and treatment to the condition. However, for this section, the study adopted a 5-point Likert scale to assess the response of the participants; the Likert scale was used to rank the responses of the participants. In the practice domain, the study had eight practice statements with a yes or no answer. The patients were assessed if they could pursue a certain or recommended practice.

The study further adopted a scoring convention to validate the responses and ensure that each of them were appropriately depicted in the analysis. A yes and no was assigned '1'. For attitude, the level of concern was easily obtained from the study participants in their Likert scale responses. In the practice domain, we assigned 1 point for each precautionary statement practiced by the client (the scores ranged from 0-8). We considered a high level of precaution for a score exceeding 7 points, moderate for 4-6, and poor for less than 3 points of the score.

Validation of the questionnaire and statistical analysis

We contracted a panel of experts to validate the questionnaire to current practice standards as well as 40 of the participants undergoing hypothyroidism treatment. In statistical analysis, the study summarized discrete data (such as information on demographics) using frequency counts and percentages. Equally, continuous data was summarized using descriptive. The statistical analysis was done and inferential information drawn, as indicated in the next sections. Cronbach's analysis was done to understand the consistency between the responses.

RESULTS

Table 1: Demographic Information

The table below shows the demographic information of the participants

Gender	Frequency	Percentage
Female	47	55%
Male	39	45%
Grand Total	86	100%
Age Category	Frequency	Percentage
18-25	14	16%
26-35	17	20%
36-45	18	21%
46-60	14	16%
61 and Older	23	27%
Grand Total	86	100%

Table 2: Distribution of Gender Per category

The table below shows the distribution of gender per category

Gender/Age	Female		Male	
	Frequency	Percentage	Frequency	Percentage
18-25	7	15%	7	18%
26-35	5	11%	12	31%
36-45	13	28%	5	13%
46-60	10	21%	4	10%
61 and Older	12	26%	11	28%
Grand Total	**47**	**1**	**39**	**1**

Table 3: Questions on Attitude Domain

The tables below show responses on questions on the attitude domain

Women are at a greater risk of developing hypothyroidism and should be tested at regular intervals for hypothyroidism	**Frequency**	**Percentage**
Agree	16	19%
Disagree	16	19%
Neutral	15	17%
Strongly Agree	18	21%
Strongly Disagree	21	24%
Grand Total	86	100%
People above the age of 35 years should be tested frequently for hypothyroidism	**Frequency**	**Percentage**
Agree	22	26%
Disagree	12	14%
Neutral	13	15%
Strongly Agree	17	20%
Strongly Disagree	22	26%
Grand Total	86	100%
Pregnant women should be tested for hypothyroidism	**Frequency**	**Percentage**
Agree	14	16%
Disagree	20	23%
Neutral	21	24%
Strongly Agree	11	13%
Strongly Disagree	20	23%
Grand Total	86	100%
People with relatives/family members diagnosed with hypothyroidism should be tested for hypothyroidism	**Frequency**	**Percentage**
Agree	14	16%
Disagree	15	17%
Neutral	15	17%
Strongly Agree	22	26%
Strongly Disagree	20	23%
Grand Total	86	100%
Treatment for hypothyroidism should be initiated after consultation with a physician only	**Frequency**	**Percentage**
Agree	18	21%
Disagree	17	20%
Neutral	15	17%
Strongly Agree	21	24%
Strongly Disagree	15	17%
Grand Total	86	100%

DISCUSSION

Demographic Information

Table 1 provides the demographic information regarding the respondents; 55% of the respondents were female and 45% were male. Respondents were also distributed in age category and 27% of the respondent were from age group 61 and above, 21% from age group 36-45, 20% were from age group 26-35 and 16% from age category 18-25. The study indicates that hypothyroidism occurs at a higher prevalence in patients in the 60+ age category. Previous studies have indicated that the condition occurs highly in people in the 46-54 age category [3].

In distribution of Gender Per category, the findings indicate that 28% (which is the highest) of the female candidate falls in the age group 36-45 while 11% (least) falls in the age group 26-35. For the male respondent, 31% (highest) of the respondents falls in the age group 26-35 while 10% (least) are in the age group 46-60. The findings are consistent with previous studies that find that women age 30 years and above are at the greatest risk of hypothyroidism. A study conducted in India showed that a significantly higher proportion of females (15.86%; $p<0.05$) were diagnosed with the condition. The same study discovered that hypothyroidism is prevalent to adult population as compared to younger population (13.11% vs 7.53%; $p=0.05$)

Questions on attitude domain

Table 4. An Analysis of the Ordinal Variables

Women are at a greater risk of developing hypothyroidism and should be tested at regular intervals for hypothyroidism	**Frequency**	**Percentage**
Agree	16	19%
Disagree	16	19%
Neutral	15	17%
Strongly Agree	18	21%
Strongly Disagree	21	24%
Grand Total	86	100%
People above the age of 35 years should be tested frequently for hypothyroidism	**Frequency**	**Percentage**
Agree	22	26%
Disagree	12	14%
Neutral	13	15%
Strongly Agree	17	20%
Strongly Disagree	22	26%
Grand Total	86	100%

The findings in the table above show that 24% of the respondents strongly disagree that women are at a greater risk of developing hypothyroidism and should be tested at regular intervals for hypothyroidism; while, 19% of the respondents agree that women are at a greater risk of developing hypothyroidism and should be tested at regular intervals for hypothyroidism. The findings indicate a worrying lack of knowledge about hypothyroidism among residents of Riyadh. Existential evidence indicates that the condition is prevalent in women, indicating the need for the patient group to seek regular testing. A study assessing KAP of hypothyroidism patients in India showed that the lack of knowledge among the educated individuals was an issue of concern to the management of the condition. Lack of knowledge about the condition was observed for the various patient demographics and age categories.

Table 5. Testing relationships using Chi-square test

			Women are at a greater risk of developing hypothyroidism and should be tested at regular intervals for hypothyroidism					Total
			Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	
	Male	Count	11	5	8	5	10	39
		% within Gender	28.2%	12.8%	20.5%	12.8%	25.6%	100.0%

Gender	Female	Count	7	11	7	11	11	47
		% within Gender	14.9%	23.4%	14.9%	23.4%	23.4%	100.0%
Total		Count	18	16	15	16	21	86
		% within Gender	20.9%	18.6%	17.4%	18.6%	24.4%	100.0%

Table 6. Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.801[a]	4	.308
Likelihood Ratio	4.877	4	.300
Linear-by-Linear Association	.474	1	.491
N of Valid Cases	86		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.80.			

28.2% of the male respondent strongly agree that women are at a greater risk of developing hypothyroidism and should be tested at regular intervals for hypothyroidism; while, 25% strongly disagree that women are at a greater risk of developing hypothyroidism and should be tested at regular intervals for hypothyroidism (p=0.308).

Table 7. Testing relationships using Chi-square test

			Pregnant women should be tested for hypothyroidism					Total
			Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	
Gender	Male	Count	6	3	6	13	11	39
		% within Gender	15.4%	7.7%	15.4%	33.3%	28.2%	100.0%
	Female	Count	5	11	15	7	9	47
		% within Gender	10.6%	23.4%	31.9%	14.9%	19.1%	100.0%
Tatal		Count	11	14	21	20	20	86
		% within Gender	12.8%	16.3%	24.4%	23.3%	23.3%	100.0%

Table 8. Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9.861[a]	4	.043
Likelihood Ratio	10.219	4	.037
Linear-by-Linear Association	2.191	1	.139
N of Valid Cases	86		
a. 1 cells (10.0%) have expected count less than 5. The minimum expected count is 4.99.			

The findings of the study indicate that 15.4% of the male respondent believe that pregnant women should be tested for hypothyroidism; while, 28.2% strongly disagree that pregnant women should be tested for hypothyroidism.10.6% of the female respondent strongly agree that pregnant women should be tested for hypothyroidism; while, 19.1% strongly disagree that pregnant women should be tested for hypothyroidism (*p=0.0430).*

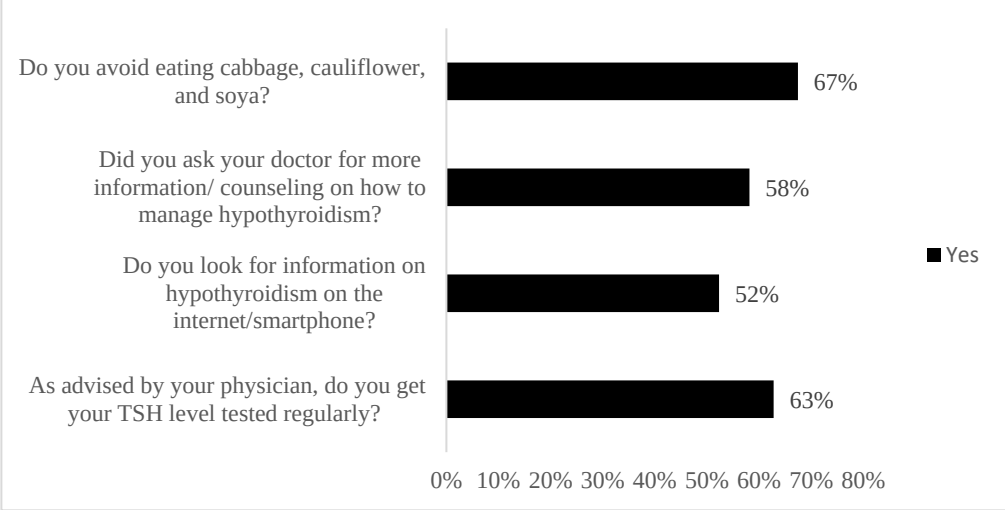

Figure 1. Questions on Practice Domain

From the analysis, 67% of the respondents avoid eating cabbage, cauliflower and soya, 58% of the respondent seeks information from doctors on how to manage hypothyroidism, and 52% of the respondents search for hypothyroidism from the Internet; while, 63% get tested regularly for TSH level as advised by their physician. This shows a good level of basic awareness in the population group.

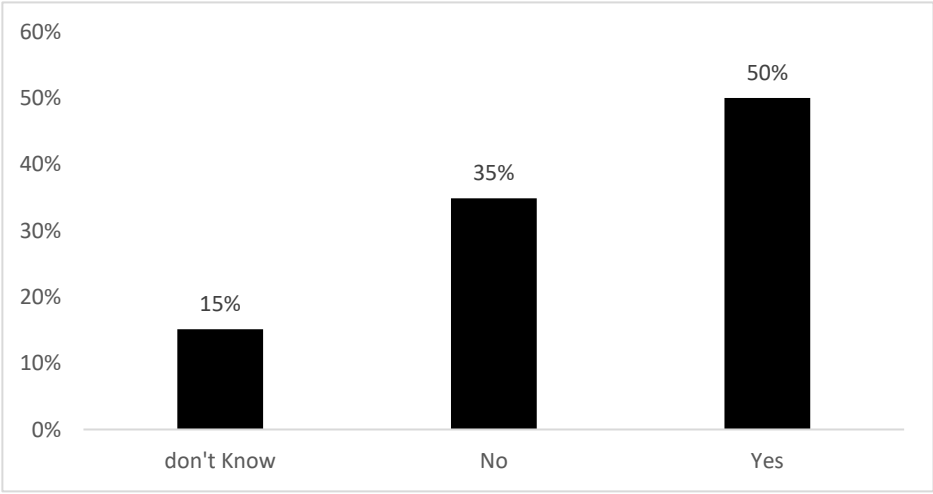

Figure 2. The rate of the answers to the question "Do you miss any doses of your medication for hypothyroidism?"

The graph above shows that 50% of the respondent miss doses of their medication for hypothyroidism. Relapse is an issue of concern among patients, and could cause secondary conditions depending on the disease. Previous studies indicate that failure to take medications can make the goiter become overreactive again, complicating the medication process [7, 10]

Previous studies indicate that the symptoms of hypothyroidism are nonspecific and often overlap with other disease conditions. Fatigue is one of the most common symptoms of the condition, but could be misleading [1]. In our study, 60% of the participants showed a consistent knowledge on fatigue, weight gain, and muscle aches, but 40% had inconsistent information various other symptoms associated with hypothyroidism. Knowledge of disease symptoms is critical for patients to identify treatment effects, progression, and narrate clinical evidence of the disease to the treating physician during follow up.

CONCLUSION

Residents of Riyadh have inadequate knowledge of hypothyroidism and its associated factors. There is a need for greater public education and awareness to improve their level of knowledge about hypothyroidism. The study was

limited to the urban city of Riyadh, which could have compromised its external validity. The fact that only literate people were selected for the study could compromise its internal validity.

REFERENCES

1. Goel A, Shivaprasad C, Kolly A, Pulikkal AA, Boppana R, Dwarakanath CS. Frequent Occurrence of Faulty Practices, Misconceptions and Lack of Knowledge among Hypothyroid Patients. Journal of clinical and diagnostic research: JCDR. 2017 Jul;11(7):OC15.
2. Singh A, Sachan B, Malik NP, Sharma VK, Verma N, Singh CP. Knowledge, Awareness, and Practices Among Patients with Thyroid Swelling Attending Cytology Clinic in a Medical College, Meerut. IJCP Group of Publications. 2014 Jan;24(8):753.
3. Maharjan S, Chhetri HP. Assessment of interventions by pharmacist in improving knowledge, attitude and practice towards hypothyroidism among the patients attending at an endocrine clinic in Nepal. Indian Journal of Pharmacy Practice. 2015 Apr;8(2):67.
4. Almousa AI, Alotaibi AM. Survey of Awareness of Thyroid Disorders among the Riyadh Population, Central Region of Saudi Arabia. The Egyptian Journal of Hospital Medicine. 2018 Jul 1;72(2):4039-44.
5. Meena P, Bajar SS. Assess the Knowledge on Hypothyroidism among Adolescent Girls attending Medicine OPD at SMCH.
6. Alarjan FM, Aljarid JS, Alruwaili AM, Alruwaili AF, Alshalan SM. Prevalence of Multinodular Goiter at Prince Mutaib Hospital in Sakaka Al-jouf. The Egyptian Journal of Hospital Medicine (July 2018). 2018 Jul 3;72(3):4045-7.
7. AlGhalayini K. Prevalence of hypothyroidism in a cohort of Saudi women with heart failure and effect on systolic and diastolic function. J Pak Med Assoc. 2015 Dec 1;65(12):1300-4.
8. Muthukumar A, Mohanraj KG. Prevalence, knowledge, and awareness of thyroid disorders among young adult women population. Drug Invention Today. 2019 Oct 1;11(10).
9. Rai S, Sirohi S, Khatri AK, Dixit S, Saroshe S. Assessment of knowledge and awareness regarding thyroid disorders among women of a cosmopolitan city of central India. Ntl J Community Med. 2016;7(3):219-22.
10. Ali AA, Altahir SA. Prevalence of Thyroids Dysfunction among Saudi Adult Males and Females from (June–September 2016)