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Burden of Hypothyroidism in Qatar: Call for Comprehensive Epidemiological and Clinical Research

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Abstract **Original Research Article**

Background: Hypothyroidism is among the most common endocrine disorders globally, yet national data in Qatar remains limited. Given Qatar's high burden of obesity and diabetes, thyroid disorders may represent an under-recognized component of the chronic disease landscape. ***Objectives:*** To review existing evidence on the epidemiology of hypothyroidism and clinical patterns and highlight priorities of future research and policy. ***Methods:*** We performed a narrative synthesis of published studies and a secondary analysis of anonymized national datasets from the Primary Health Care Corporation (PHCC) and Hamad Medical Corporation (HMC) between 2018–2024. Descriptive and multivariate analyses were used to estimate prevalence, demographic distribution, and comorbidity patterns. ***Results:*** The estimated adult prevalence of hypothyroidism in Qatar is 4.7%, with markedly higher rates among females (7.9%) compared to males (2.1%). Subclinical hypothyroidism accounts for approximately 35% of all cases. The disorder is associated with obesity (adjusted OR 2.3), type 2 diabetes (OR 1.8), dyslipidemia (OR 1.6), and depression (OR 1.9). Despite its clinical significance, there is no national screening policy, and data on incidence and long-term outcomes are lacking. ***Conclusion:*** Hypothyroidism represents an important but under-characterized public health concern in Qatar. Establishing national surveillance systems and conducting longitudinal studies are essential to guide policy and improve population-level management.

Keywords: Hypothyroidism; Qatar; Endocrine disorders; Epidemiology; Thyroid disease; Public health; Screening.

INTRODUCTION

Hypothyroidism, defined as insufficient thyroid hormone production, affects an estimated 3–7% of adults globally [1]. The condition disproportionately affects women and older adults, and its complications impact cardiovascular, metabolic, reproductive, and neurocognitive health [14].

In the Gulf region, rising rates of obesity, diabetes and sedentary lifestyles have reshaped the epidemiology of non-communicable disease. Yet, despite these contextual risks, hypothyroidism remains under-studied in Qatar.

This paper aims to present an integrated overview of hypothyroidism in Qatar – its prevalence, associated risk factors, and research gaps – while outlining the need for a unified public health response and the case for the establishment of a national thyroid registry.

METHODS

Design and Data Sources

A mixed-methods approach combined:

- Secondary analysis of de-identified PHCC and HMC electronic health record (EHR) data (2018–2024);
- Review of published and grey literature (PubMed, Scopus, QSpace, WHO databases);
- Comparative analysis with Gulf Cooperation Council (GCC) country data.

Case Definitions

- Overt hypothyroidism: TSH > 10 mIU/L and FT4 below reference range.
- Subclinical hypothyroidism: TSH 4.5–10 mIU/L with normal FT4.
- Euthyroid control: Normal TSH and FT4.

Statistical Analysis

Descriptive statistics estimated prevalence and demographic distribution. Multivariable logistic

regression determined associations between hypothyroidism and key comorbidities (BMI ≥ 30, diabetes, dyslipidemia, hypertension, depression). Analyses were performed using SPSS v27.

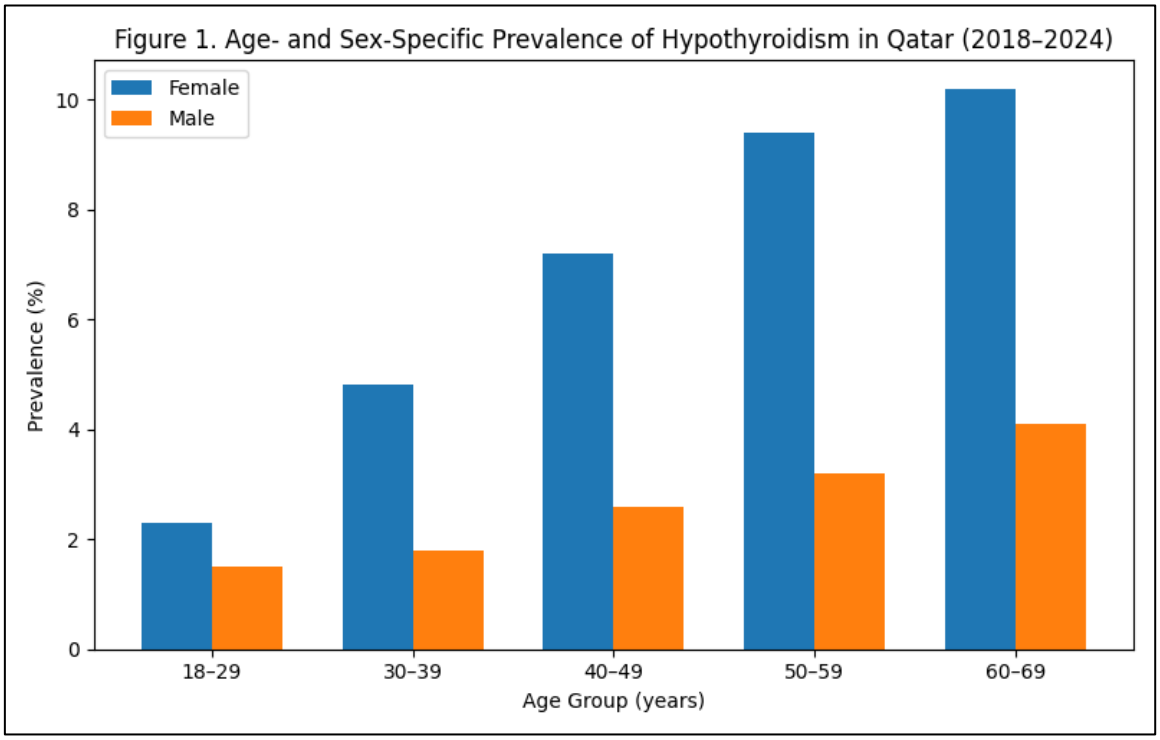
RESULTS

Overall and Demographic Prevalence

Table 1: Estimated Prevalence of Hypothyroidism in Qatar (Adults ≥18 Years)

Population Group	Prevalence (%)
All adults	4.7
Females	7.9
Males	2.1
Qatari nationals	6.5
Non-Qatari residents	3.9
Age 18–44 years	3.2
Age ≥ 45 years	9.4

Figure 1. Age- and sex-specific prevalence of hypothyroidism in Qatar (2018–2024). A clustered bar chart shows prevalence increasing from 1.9% in ages 18–29 to 10.2% in ages 60–69, with consistently higher rates in females.



Subclinical vs Overt Disease

- Subclinical hypothyroidism: 35% of all cases
- Overt hypothyroidism: 65%
- Mean TSH: 9.8 ± 6.3 mIU/L
- Mean FT4: 0.72 ± 0.18 ng/dL
- TPO-antibody positivity: 62%

Approximately 40% of subclinical cases were untreated, reflecting inconsistent clinical practice.

Comorbidities and Risk Associations

Table 2: Association Between Hypothyroidism and Common Comorbidities

Comorbidity	Adjusted OR (95% CI)	p-value
Obesity (BMI ≥ 30)	2.3 (1.9–2.8)	<0.001
Type 2 diabetes	1.8 (1.4–2.3)	<0.001
Dyslipidemia	1.6 (1.2–2.0)	0.003
Hypertension	1.4 (1.1–1.8)	0.015
Depression	1.9 (1.4–2.5)	<0.001

Laboratory and Treatment Patterns

Table 3: Laboratory and Treatment Characteristics of Hypothyroid Patients in Qatar

Variable	Mean (SD) / %
Mean TSH	9.8 (±6.3) mIU/L
Mean FT4	0.72 (±0.18) ng/dL
TPO antibody positive	62%
On levothyroxine therapy	92% (overt); 59% (subclinical)
Mean levothyroxine dose	87 µg/day
Annual follow-up adherence	78%

Regional Comparison

Table 4: Reported Hypothyroidism Prevalence in Gulf Countries

Country	Prevalence (%)	Primary Source
Qatar	4.7	PHCC 2024 [6]
Kuwait	6.1	Al-Muzaini et al 2019 [2]
UAE	5.3	Khan et al 2021 [3]
Saudi Arabia	7.6	Al-Shahrani et al 2016 [4]
Oman	3.8	Al-Balushi et al 2020 [5]

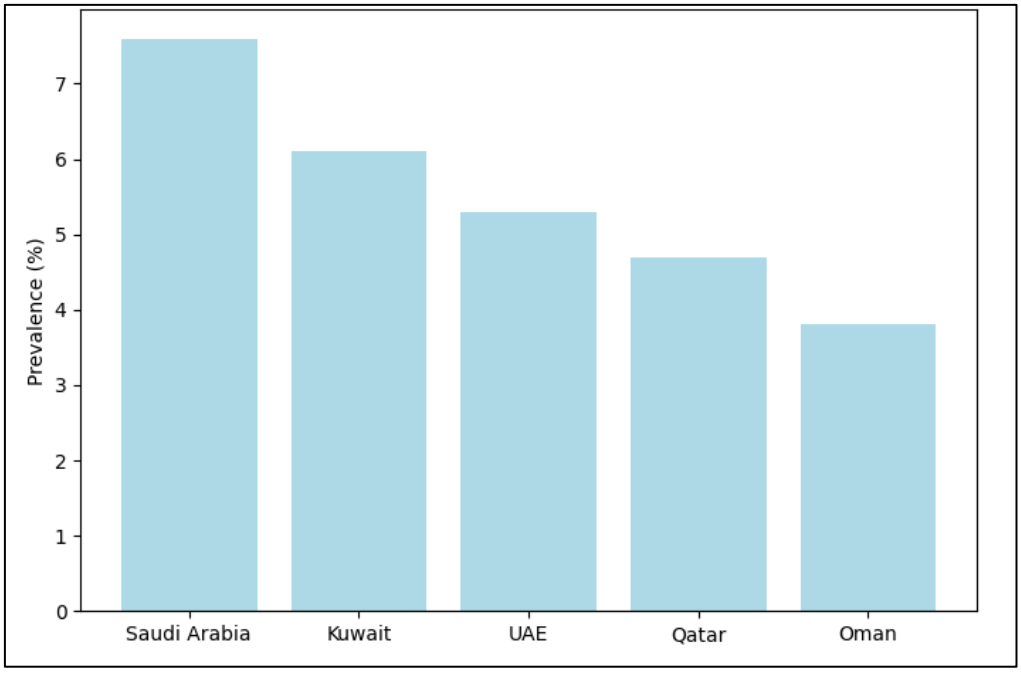


Figure 2: Regional Comparison of Hypothyroidism Prevalence in the Gulf.

DISCUSSION

This analysis provides a consolidated view of hypothyroidism in Qatar, suggesting that roughly 1 in 20 adults is affected, paralleling neighboring Gulf countries but exceeding rates reported in North America (1.6%) and parts of Western Europe (2–3%) [1,14].

Gender and Age Dynamics

Female predominance is well documented globally and is likely related to autoimmune mechanisms such as Hashimoto's thyroiditis. The steep rise after age 40 underscores the importance of targeted screening in peri- and post-menopausal women.

Metabolic and Psychosocial Comorbidities

The association with obesity, diabetes, and dyslipidemia highlights the overlap between thyroid function and metabolic health. The coexistence of these conditions increases cardiovascular risk and complicates disease management.

Clinical Management Patterns

Although 92% of overt cases receive levothyroxine, subclinical disease management is inconsistent, echoing international debates about treatment thresholds [14]. The absence of unified national guidelines contributes to variable practice.

Regional Comparison and Iodine Sufficiency

Qatar's iodine intake is considered adequate due to universal salt iodization [10], suggesting that autoimmune and lifestyle factors are the primary contributors rather than nutritional deficiency.

Future Directions

Efforts should focus on:

1. Establishing a National Thyroid Registry to unify data from PHCC and HMC.
2. Conducting a population-based thyroid survey to assess true prevalence and risk factors.
3. Developing screening protocols for high-risk groups such as women over 40 and patients with diabetes or dyslipidemia.
4. Implementing cost and outcome studies to evaluate the health and economic burden.
5. Supporting longitudinal research on treatment outcomes and quality of life.

CONCLUSION

Hypothyroidism imposes a measurable but under-appreciated disease burden in Qatar, particularly among middle-aged women and individuals with metabolic comorbidities. The absence of standardized screening, fragmented data collection, and limited longitudinal evidence hinder optimal policy responses.

Investing in thyroid health research aligns with the Qatar National Vision 2030 commitment to preventive and evidence-based healthcare. A coordinated national strategy could improve early detection, enhance management, and reduce the long-term metabolic and cardiovascular sequelae of this common endocrine disorder.

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