

CLINICAL CHARACTERISTICS AND COMPLICATIONS OF HOSPITALIZED PATIENTS WITH HYPOTHYROIDISM AT KHOIST PROVINCIAL SPECIALIZED HOSPITAL, AFGHANISTAN: A HOSPITAL- BASED DESCRIPTIVE STUDY

Dr. Naqibullah Mangal^{*1}, Dr. Mohammad Naqib Shah², Dr. Sidullah Paktin³

^{*1}Assistant Professor, Department of Clinical Sciences, Faculty of Medicine, Ahmad Shah Abdali University, Khost, Afghanistan

^{2,3}Lecturer, Faculty of Medicine, Ahmad Shah Abdali University, Khost, Afghanistan

^{*1}naqibmangale650@gmail.com

Corresponding Author: *

Dr. Naqibullah Mangal

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ABSTRACT

Introduction: Hypothyroidism is one of the most common endocrine disorders caused by insufficient production of thyroid hormones. It affects approximately 1% of the general population, with the prevalence increasing to nearly 5% among individuals older than 60 years. Women account for approximately 85% of affected patients. This study aimed to evaluate the frequency, demographic characteristics, clinical manifestations, complications, management, and outcomes of hypothyroidism among hospitalized patients admitted to the Department of Internal Medicine at Khost Provincial Specialized Hospital, Afghanistan.

Materials and Methods: This hospital-based descriptive case series was conducted at the Department of Internal Medicine, Khost Provincial Specialized Hospital, between June and December 2025. All patients diagnosed with hypothyroidism based on clinical presentation and laboratory findings during the study period were included. Data were collected from hospital medical records using a standardized data collection form. Demographic characteristics, clinical manifestations, physical examination findings, complications, treatment, and patient outcomes were recorded and analyzed using Microsoft Excel and SPSS version 26.

Results: During the study period, a total of 2,116 patients were admitted to the Department of Internal Medicine, of whom 38 patients (1.79%) were diagnosed with hypothyroidism. Among these patients, 22 (57.9%) were female and 16 (42.1%) were male. Most patients (55.3%) were between 46 and 60 years of age. The most common presenting symptoms were generalized body pain, loss of appetite, cold intolerance, and constipation. The most frequent clinical signs included skin changes, weight gain, and hypertension. Dyslipidemia (76%) and hypertension (55%) were the most common complications observed.

Conclusion: Hypothyroidism is a significant endocrine disorder among hospitalized patients in Khost Province, predominantly affecting middle-aged women. Early diagnosis through thyroid function testing and timely initiation of levothyroxine therapy are essential to prevent complications and improve patient outcomes. Strengthening laboratory capacity, increasing public awareness, and implementing routine screening programs for high-risk populations may improve the early detection and management of hypothyroidism in Afghanistan.

Keywords: Hypothyroidism, Thyroid gland, Levothyroxine, Dyslipidemia, Clinical manifestations, Khost, Afghanistan

INTRODUCTION:

Hypothyroidism is a functional disorder of the thyroid gland characterized by insufficient production of thyroid hormones due to impaired thyroid function, resulting in decreased circulating thyroxine (T4) levels (Mendes, Alves, Silverio, & Marques, 2019). It is one of the most common endocrine disorders, affecting approximately 1% of the general population and nearly 5% of individuals older than 60 years (De Leo & Braverman, 2019). Thyroid hormone deficiency has widespread effects on virtually every organ system in the body (Chaker, Cappola, Mooijart, & Peeters, 2018). The severity of hypothyroidism ranges from mild or subclinical disease to life-threatening myxedema coma. Hypothyroidism is a chronic endocrine disorder resulting from decreased functional activity of the thyroid gland, leading to insufficient production of triiodothyronine (T3) and thyroxine (T4) (Chaker, Razvi, Bensenor, & Azizi; Mansoor, Rizvi, Kausar, Aslam, & Huda, 2011). These hormones play essential roles in energy production, regulation of metabolism, cardiovascular and neurological function, thermoregulation, and normal cellular growth and development. Consequently, thyroid hormone deficiency slows the function of multiple organ systems and gives rise to a broad spectrum of clinical manifestations (Melmed, Polonsky, Larsen, & Kronenberg, 2015). Subclinical hypothyroidism may remain undiagnosed in the absence of appropriate screening, particularly serum thyroid-stimulating hormone (TSH) measurement, as patients are frequently asymptomatic or present with nonspecific symptoms (Davis & Phillippi, 2022). The most common clinical manifestations include weight gain, fatigue, lethargy, irritability, cognitive impairment, generalized weakness, exertional dyspnea, arthralgia, myalgia, menorrhagia, constipation, dry skin, headache, paresthesia, carpal tunnel syndrome, cold intolerance, and Raynaud's phenomenon (Wojtachnio et al., 2022). Physical examination

may reveal bradycardia, diastolic hypertension, brittle and coarse nails, thinning hair, peripheral edema, facial puffiness, pale or yellowish skin (carotenemia), and delayed relaxation of deep tendon reflexes. In some patients, a palpable goiter may be present, often associated with elevated serum TSH levels secondary to underlying thyroid pathology (Rad, Mohammadi, Zadeh, Mosleh-Shirazi, & Dehesh, 2024). Globally, hypothyroidism is recognized as one of the most prevalent endocrine disorders. Epidemiological studies have consistently demonstrated a markedly higher prevalence among women than men, particularly after the age of 40 years (Ertugrul et al., 2011). Advancing age, Hashimoto's thyroiditis, iodine deficiency, genetic susceptibility, previous thyroid surgery, and certain medications have been identified as major risk factors for the development of hypothyroidism (Wang et al., 2023). In Afghanistan, iodine deficiency, limited access to healthcare services, inadequate laboratory facilities, and poor public awareness contribute to delayed diagnosis, with many patients presenting at advanced stages of the disease. Consequently, local epidemiological studies investigating the clinical characteristics and complications of hypothyroidism are of considerable importance. Therefore, the present study was conducted to evaluate the demographic characteristics, clinical manifestations, complications, and treatment outcomes of hospitalized patients with hypothyroidism admitted to the Department of Internal Medicine at Khost Provincial Specialized Hospital. The findings are expected to provide evidence that supports earlier diagnosis, improved clinical management, and better healthcare planning for patients with hypothyroidism in Afghanistan.

Materials and Methods

Study Design and Setting: This was a hospital-based descriptive study conducted in the Department of Internal Medicine at Khost Provincial Specialized Hospital, Afghanistan. The

study was carried out over a six-month period from June to December 2025.

Study Population: The study included all patients admitted to the Internal Medicine ward during the study period who were diagnosed with hypothyroidism based on clinical evaluation and laboratory investigations. A total of 38 patients met the inclusion criteria and were enrolled in the study.

Data Collection: Data were collected from patients' medical records using a structured data collection form designed for this study. Variables included age, sex, place of residence, clinical symptoms, physical examination findings, complications, treatment, and clinical outcomes.

Data Management and Analysis: The collected data were first entered into Microsoft Excel and then analyzed using SPSS version 26. Descriptive statistics such as frequency, percentage, and mean were used to summarize the data.

Ethical Considerations: Patient confidentiality was strictly maintained throughout the study. All collected data were kept anonymous, and the study was conducted after obtaining approval from the relevant hospital authorities.

Results

During the study period, a total of 2,116 patients were admitted to the Department of Internal Medicine at Khost Provincial Specialized Hospital. Of these, 38 patients (1.79%) were hospitalized with a diagnosis of hypothyroidism. Females accounted for 57.9% of the cases, while males comprised 42.1%. The majority of patients (55.3%) were aged 46–60 years. The most frequently reported symptoms were generalized body pain, loss of appetite, cold intolerance, and constipation. The most common clinical findings included skin changes, weight gain, and hypertension. Dyslipidemia and hypertension were identified as the most prevalent complications among the study population.

Table 1. Number of Patients Admitted to Khost Provincial Specialized Hospital During the Study Period

No	Study Site	Study Period (Start and End)	Number of Admitted Patients	Number of Hypothyroidism Patients	Percentage of Hypothyroidism Patients
1	Khost Provincial Specialized Hospital	From 01/06/1403 to 31/12/1403	2116	38	1.79%

Sex Distribution of the Patients

Among the 38 patients included in the study, 22 (57.9%) were female and 16 (42.1%) were male,

indicating that hypothyroidism was more prevalent among females than males.

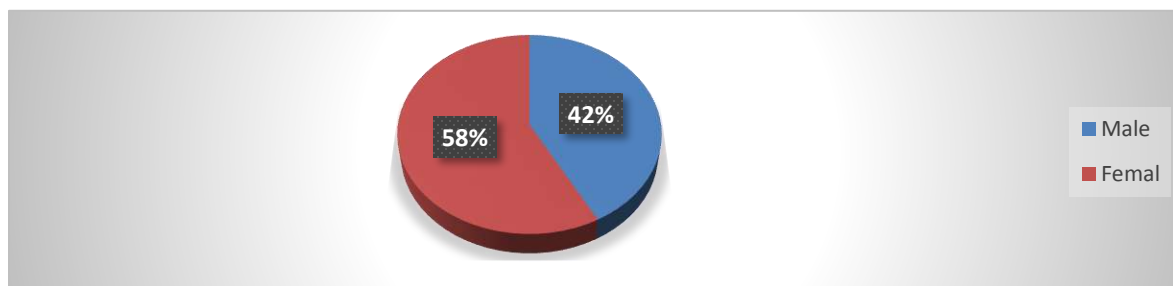


Figure 1. Distribution of Patients with Hypothyroidism by Sex

Age Distribution of the Patients

The majority of patients with hypothyroidism were in the 46–60 years age group, accounting for 55.3% of all cases. Patients aged 31–45 years represented 34.2% of the study population, while

only a small proportion belonged to the younger (16–30 years) and older (>60 years) age groups. No cases were recorded among patients younger than 15 years.

Table 2. Distribution of Patients with Hypothyroidism by Age Group

No.	Age Group (Years)	Male		Female		Total	
		Count	percentage	count	percentage	count	percentage
1	<15	0	0%	0	0%	0	0%
2	16 - 30	1	6%	0	0%	1	3%
3	31 - 45	8	50%	5	22%	13	34%
4	46 - 60	7	44%	14	64%	21	55%
5	> 60	0	0%	3	14%	3	8%
	Total	16	100%	22	100%	38	100%

Distribution of Patients by Place of Residence

According to the study findings, the highest number of patients with hypothyroidism was recorded from Khost Center and the surrounding areas, accounting for 14 patients (37%). The

remaining patients were distributed across several districts of Khost Province, each contributing between 5% and 8% of the total study population.

Table 3. Distribution of Clinical Symptoms Among Patients with Hypothyroidism

No.	District	Count	Percentages
1	Khost Center and Surrounding Areas	14	37%
2	Tani District	3	8%
3	Sabari District	3	8%
4	Spera District	2	5%
5	Zazi Maidan District	2	8%
6	Ismail Khail And Mandozai District	2	5%
7	Qalandar District	2	5%
8	Nadir Shah Kot District	3	8%
9	Musa Khail District	3	8%
10	Gurbuz District	3	8%
		38	100%

Distribution of Clinical Symptoms Among Patients with Hypothyroidism

Overall, the findings indicate that the most common clinical symptoms among patients with

hypothyroidism were generalized body pain, loss of appetite, cold intolerance, and constipation. These manifestations are consistent with the well-

established clinical presentation of hypothyroidism reported in the literature.

Table 4. Distribution of Clinical Symptoms Among Patients with Hypothyroidism

No.	Symptoms	count	percentages
1	Loss of Appetite	32	84%
2	Constipation	24	63%
3	Generalized Body Pain	35	98%
4	Cold intolerance	28	74%

Distribution of Clinical Signs Among Patients with Hypothyroidism

Overall, the findings demonstrated that skin changes, weight gain, and hypertension were the

most common clinical signs observed among patients with hypothyroidism. In contrast, depression and non-pitting edema were less frequently reported

Table 5. Distribution of Clinical Signs Among Patients with Hypothyroidism

No.	Signs	count	percentages
1	Skin Changes	33	87%
2	Depression	7	18%
3	Hypertension	21	55%
4	Cardiac Manifestations	15	39%
5	Weight Gain	27	71%
6	Non-pitting Edema	14	37%

Distribution of Complications Among Patients with Hypothyroidism

Overall, the findings demonstrated that dyslipidemia and hypertension were the most common complications observed among patients with hypothyroidism, both of which substantially

increase the risk of cardiovascular disease. In contrast, myxedema coma and myxedema madness (myxedema psychosis) were uncommon but potentially life-threatening complications requiring prompt diagnosis and immediate treatment.

Table 6. Distribution of Complications Among Patients with Hypothyroidism

No.	Type of Complication	Number of Patients	percentages
1	Dyslipidemia	29	76%
2	Myxedema maddens	1	2%
3	Hypertension	21	55%
4	Brady cardia	9	24%
5	Myxedema coma	4	11%

Discussion

The present study investigated the clinical characteristics and complications of hypothyroidism among hospitalized patients admitted to the Department of Internal Medicine

at Khost Provincial Specialized Hospital. The findings indicate that hypothyroidism predominantly affects middle-aged women and is frequently associated with nonspecific clinical

manifestations, which may contribute to delayed diagnosis.

In the present study, 57.9% of the patients were female. This finding is consistent with previous international studies, which have demonstrated that autoimmune thyroid diseases, hormonal influences, and genetic susceptibility contribute to the higher prevalence of hypothyroidism among women. Furthermore, patients aged 46–60 years represented the largest proportion of cases, a finding that is in agreement with previous epidemiological studies (Zamwar & Muneshwar, 2023).

The most frequently reported symptoms in our study were generalized body pain, fatigue, loss of appetite, constipation, and cold intolerance. These manifestations reflect the generalized reduction in metabolic activity resulting from thyroid hormone deficiency. Because these symptoms are nonspecific and overlap with those of many chronic medical conditions, laboratory evaluation—particularly thyroid function testing—is essential for establishing an accurate diagnosis, consistent with previous reports (Taylor et al., 2018).

On physical examination, skin changes, weight gain, and hypertension were the most common clinical findings. These manifestations are attributable to the systemic effects of thyroid hormone deficiency on metabolic processes, fluid retention, and cardiovascular function.

Among the observed complications, dyslipidemia was the most prevalent. This finding is consistent with international evidence demonstrating that patients with hypothyroidism have an increased risk of cardiovascular disease due to elevated levels of low-density lipoprotein (LDL) cholesterol and total cholesterol. Therefore, routine assessment of the lipid profile should be considered an integral component of the clinical follow-up of patients with hypothyroidism.

Although myxedema coma was identified in only a small proportion of patients, it remains the most severe and life-threatening complication of hypothyroidism, with a high mortality rate despite appropriate treatment. The occurrence of this complication suggests that some patients present to the hospital at an advanced stage of the disease, highlighting the need for earlier diagnosis and timely initiation of therapy (Vemula et al., 2023).

Overall, the findings of this study are consistent with those reported in the international literature and emphasize the urgent need to improve the early detection of hypothyroidism in Afghanistan. Expanding access to thyroid function testing, strengthening laboratory capacity, increasing public awareness, and enhancing healthcare providers' knowledge regarding the recognition and management of hypothyroidism are essential measures to reduce disease-related complications and improve patient outcomes.

Variable	Khost Provincial Hospital (Afghanistan)	Benazir Bhutto Hospital Rawalpindi (Pakistan)	Hospital Universitario La Paz, Madrid (Spain)	John F. Kennedy Hospital (Türkiye)
Sex distribution	The majority of hypothyroidism cases occurred in females.	The majority of hypothyroidism cases occurred in females	The majority of hypothyroidism cases occurred in females.	The majority of hypothyroidism cases occurred in females.
Age distribution	Most cases occurred in individuals older than 45 years.	Cases were reported across the age range of 5–80 years.	Most cases occurred in individuals older than 55 years.	Most cases occurred in individuals older than 58 years.
Major clinical manifestation	Cold intolerance, weight gain, constipation, and loss of appetite.	Cold intolerance, weight gain, constipation, and loss of appetite.	Cold intolerance, weight gain, constipation, and loss of appetite.	Cold intolerance, weight gain, constipation, and loss of appetite.

Most common manifestation	Dyslipidemia and hypertension.	Dyslipidemia and hypertension.	Dyslipidemia and hypertension.	Dyslipidemia and hypertension.
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The findings of the present study are broadly consistent with those reported in similar studies conducted in hospitals in Pakistan, Spain, and Türkiye. Across all studies, hypothyroidism was found to be significantly more prevalent among females than males, which is in agreement with the well-established epidemiology of the disease (Ertugrul et al., 2011).

Although slight differences were observed in the age distribution of patients, all studies consistently demonstrated that hypothyroidism predominantly affects middle-aged and older adults. This finding supports the growing body of evidence indicating that the prevalence of hypothyroidism increases with advancing age.

Similarly, the most commonly reported clinical manifestations across all studies included cold intolerance, weight gain, constipation, and loss of appetite, which are recognized as the classic clinical features of hypothyroidism (Donnay et al., 2013). The consistency of these findings across different populations reinforces the characteristic clinical presentation of the disease.

Regarding complications, dyslipidemia and hypertension were the most frequently reported complications in all studies. These findings are clinically important because both conditions substantially increase the risk of cardiovascular morbidity and mortality among patients with hypothyroidism. Consequently, routine cardiovascular risk assessment and lipid profile monitoring should be considered essential components of patient management.

Overall, the findings of the present study show a high degree of agreement with previously published international research, supporting the scientific validity and external generalizability of the study results (Nafisa, Ikram, Khursheed, Anjum, & Akhtar, 2021). Nevertheless, differences in healthcare systems, iodine nutritional status, population characteristics, and access to diagnostic facilities should be considered when interpreting comparisons across different countries. These factors may contribute

to variations in disease prevalence, clinical presentation, and treatment outcomes.

Conclusion

The findings of this study demonstrate that hypothyroidism is a significant endocrine disorder among hospitalized patients in Khost Province, Afghanistan, predominantly affecting middle-aged women. The most common clinical manifestations included generalized body pain, fatigue, loss of appetite, constipation, and cold intolerance, whereas dyslipidemia and hypertension were the most frequently observed complications. Early diagnosis through routine thyroid function testing and timely initiation of levothyroxine replacement therapy can substantially reduce the risk of serious complications and improve patients' quality of life. These findings underscore the importance of increasing awareness among healthcare professionals and strengthening diagnostic and treatment services for hypothyroidism in Afghanistan.

Study Limitations

- The study was conducted at a single tertiary care hospital, which may limit the generalizability of the results to the wider population.
- The sample size was relatively small.
- Long-term follow-up of the patients was not performed; therefore, long-term clinical outcomes could not be evaluated.
- Complete laboratory data for certain biochemical parameters were unavailable for all patients, which may have affected the comprehensive assessment of disease characteristics.

Recommendations

- Routine thyroid function screening should be implemented for women aged 40 years and older, particularly those at increased risk of thyroid disorders.

- Healthcare professionals working in primary healthcare facilities should receive regular training on the early recognition, diagnosis, and management of hypothyroidism.
- Public health awareness campaigns promoting the use of iodized salt and increasing awareness of thyroid disorders should be strengthened.
- Laboratory capacity for thyroid function testing should be expanded in provincial and regional hospitals to facilitate early diagnosis.
- Large-scale multicenter studies involving different provinces of Afghanistan are recommended to determine the national prevalence, clinical characteristics, and risk factors of hypothyroidism.
- Patients diagnosed with hypothyroidism should undergo regular follow-up for lipid abnormalities, cardiovascular disease, and hypertension, as these are common comorbidities associated with thyroid hormone deficiency.

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