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ORIGINAL ARTICLE

Clinical Profile and Fetomaternal Outcomes of Thyroid Disorders in Pregnancy: An Observational Study at a Tertiary Care Hospital in Bangladesh

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ABSTRACT

Background: Thyroid disorders are the most common endocrine abnormalities faced during pregnancy and are associated with adverse maternal and neonatal outcomes. In Bangladesh, delayed antenatal booking, variable access to laboratory testing, and lack of uniform thyroid screening contributes to missed or late diagnosis. Objective: To evaluate the clinical profile of pregnant women with thyroid disorders and determine their association with maternal and perinatal outcomes.

Methods: This cross sectional observational study was conducted at the Department of Obstetrics and Gynaecology, Khawja Yunus Ali Medical College Hospital, Enayetpur, Sirajganj, Bangladesh, from January 2023 to December 2025. A total of 252 pregnant women with thyroid dysfunction and 252 euthyroid controls were enrolled. Thyroid dysfunction was classified according to the American Thyroid Association (ATA) defined thyroid function criteria in pregnancy using trimester-specific reference ranges. Maternal demographic characteristics, thyroid profiles, treatment characteristics, obstetric complications, and neonatal outcomes were recorded.

Results: Subclinical hypothyroidism was the predominant thyroid disorder (57.9%), followed by overt hypothyroidism (32.1%). Compared with euthyroid controls, women with thyroid dysfunction had significantly higher rates of pregnancy-induced hypertension (12.7% vs 6.0%), preterm birth (28.6% vs 13.9%), low birth weight (21.8% vs 10.7%), fetal growth restriction (IUGR) (11.9% vs 5.2%), and cesarean delivery (59.1% vs 44.5%). Adjusted logistic regression showed that thyroid dysfunction was independently associated with preterm birth, low birth weight, NICU admission, pregnancy-induced hypertension, fetal growth restriction, and cesarean section.

Conclusion: Thyroid dysfunction during pregnancy was independently associated with adverse maternal and neonatal outcomes.

Keywords: Thyroid disorders; pregnancy; maternal outcome; neonatal outcome.

INTRODUCTION

Pregnancy is associated with profound physiological changes affecting thyroid hormone metabolism. Increased human chorionic gonadotropin, higher estrogen concentrations, enhanced thyroxine-binding globulin production, increased renal iodine clearance, and greater maternal thyroid hormone demand alter thyroid function throughout gestation. These changes may reveal previously unrecognized thyroid disease or worsen pre-existing dysfunction.[1,2] Thyroid disorders are among the most frequent endocrine problems in pregnancy. Hypothyroidism, particularly subclinical hypothyroidism, is more common than hyperthyroidism and has been linked with miscarriage, hypertensive disorders, placental abruption, preterm birth, fetal growth restriction, low birth weight, impaired neurodevelopment, and perinatal mortality.[3-5]

Professional guidelines emphasize pregnancy-specific interpretation of thyroid function tests, careful monitoring, and timely treatment because both under-treatment and over-treatment may adversely affect the mother and fetus.[6]

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Bangladesh continues to face a clinically relevant burden of thyroid disease despite progress in salt iodization. Studies of iodine nutrition and thyroid dysfunction among Bangladeshi women suggest that subclinical iodine deficiency and thyroid abnormalities remain important public health concerns, particularly among women of reproductive age and pregnant women.[7,8]

Recent Bangladeshi studies have reported a substantial frequency of thyroid dysfunction during pregnancy, with subclinical hypothyroidism repeatedly described as the dominant pattern. Studies from different hospital settings of Bangladesh have also highlighted associations with maternal anemia, miscarriage, pregnancy-induced hypertension, preterm birth, intrauterine growth restriction, and low birth weight.[9-12]

Comparable findings have been reported from India, where thyroid dysfunction in pregnancy is common and often detected only after antenatal testing. South Asian populations share several relevant risk factors, including nutritional vulnerability, delayed antenatal registration, iodine-related variation, and variable access to endocrine care.[13-15]

However, outcome-oriented prospective data from northern Bangladesh remain limited. This study was therefore undertaken to evaluate the clinical profile of pregnant women with thyroid disorders and to assess their maternal and perinatal outcomes compared with euthyroid controls at a tertiary care teaching hospital in a Northern district of Bangladesh.

MATERIAL AND METHODS

This cross-sectional observational study with a comparison group was conducted at the Department of Obstetrics and Gynecology, Khawja Yunus Ali Medical College Hospital, Enayetpur, Sirajganj, Bangladesh, from January 2024 to December 2025. A total of 252 pregnant women diagnosed with thyroid dysfunction constituted the case group. A comparison group of 252 euthyroid pregnant women was selected from antenatal attendees during the same study period and matched approximately by maternal age, parity, residence, and gestational age at enrollment.

Inclusion Criteria

1. Singleton pregnancy
2. Gestational age >=12 weeks
3. Availability of thyroid function testing
4. Written informed consent

Exclusion Criteria

1. Multiple pregnancy
2. Known chronic renal disease
3. Pre-existing diabetes mellitus
4. Chronic hypertension
5. Known autoimmune disorders unrelated to thyroid disease

Diagnostic Classification and Treatment

Thyroid dysfunction was classified using trimester-specific thyroid function interpretation consistent with established pregnancy guidelines. Women with hypothyroidism received levothyroxine, and hyperthyroid women received carbimazole under specialist supervision. Thyroid function tests were repeated every 4-6 weeks, and doses were adjusted according to serial TSH and FT4 measurements.[16,17]

Data Collection

Data were collected using a structured case record form. Variables included maternal age, parity, residence, gestational age at diagnosis, thyroid function status, treatment received, treatment timing, dose adjustment, maternal complications, mode of delivery, and neonatal outcomes.

Statistical Analysis

Data were analyzed using SPSS version 26.0. Continuous variables were expressed as mean ± standard deviation. Categorical variables were presented as frequency and percentage. Chi-square tests were used for comparison of categorical variables between cases and controls. Multivariate logistic regression was performed to identify independent associations between thyroid dysfunction and adverse outcomes after adjustment for maternal age, parity, residence, gestational age at enrollment, and treatment status. A p-value <0.05 was considered statistically significant.

RESULTS

Baseline Characteristics

A total of 252 pregnant women with thyroid dysfunction and 252 euthyroid pregnant women were included in the study. The mean maternal age of women with thyroid dysfunction was 27.9 ± 4.8 years. Primigravida women constituted 46.0% of the case group, while 63.9% were from rural areas. The mean gestational age at diagnosis was 18.4 ± 4.2 weeks.

Table 1. Baseline Characteristics of Women with Thyroid Disorders (N=252)

Variable	Value
Mean (±SD) age (years)	27.9 ± 4.8
Primigravida	116 (46.0%)
Multigravida	136 (54.0%)
Rural residence	161 (63.9%)
Urban residence	91 (36.1%)
Mean (±SD) gestational age at diagnosis (weeks)	18.4 ± 4.2

Distribution of Thyroid Disorders

Subclinical hypothyroidism was the most common thyroid abnormality, accounting for 57.9% of all thyroid disorders. Overt hypothyroidism represented 32.1% of cases, while hyperthyroidism accounted for 10.0%.

Table 2. Distribution of Thyroid Disorders (N=252)

Diagnosis	Frequency	Percentage (%)
Subclinical hypothyroidism	146	57.9
Overt hypothyroidism	81	32.1
Hyperthyroidism	25	10.0
Total	252	100

Treatment Characteristics

Among the 227 women diagnosed with hypothyroidism (subclinical or overt), **217 (95.6%) received levothyroxine therapy**, while **10 (4.4%) were managed conservatively because of mild biochemical abnormalities**, including marginal elevations of TSH with normal FT4 levels and absence of significant clinical symptoms. These women underwent close biochemical surveillance with repeat thyroid function testing at regular intervals and did not demonstrate progression requiring pharmacological intervention during follow-up. Treatment was initiated during the first trimester in 73 women (33.6%), second trimester in 116 women (53.5%), and third trimester in 28 women (12.9%). Levothyroxine dose adjustment was required in 131 women (60.4%) based on serial thyroid function assessments. Among hyperthyroid women, 23 received carbimazole therapy and 17 required dose modification during pregnancy.

Table 3. Treatment Profile of Women with Thyroid Disorders (N=252)

Variable	n (%)
Levothyroxine therapy	217 (86.1)
No levothyroxine	10 (4.0)
Carbimazole therapy	23 (9.1)
No carbimazole	2 (0.8)
Levothyroxine started in 1st trimester	73 (33.6)
Levothyroxine started in 2nd trimester	116 (53.5)
Levothyroxine started in 3rd trimester	28 (12.9)
Levothyroxine dose adjustment required	131 (60.4)
Carbimazole dose adjustment required	17 (73.9 of treated women)

Ten women with hypothyroidism were not treated with levothyroxine because of mild biochemical abnormalities (borderline TSH elevation with normal FT4 levels) and were managed with close clinical and laboratory monitoring.

Maternal Complications

Pregnancy-induced hypertension was the most common maternal complication, occurring in 12.7% of women. Preeclampsia occurred in 9.1%, while oligohydramnios and gestational diabetes were observed in 7.1% and 5.6%, respectively.

Table 4. Maternal Complications among Women with Thyroid Disorders (N=252)

Complication	n (%)
Pregnancy-induced hypertension	32 (12.7)
Preeclampsia	23 (9.1)
Oligohydramnios	18 (7.1)
Gestational diabetes	14 (5.6)
Placental abruption	5 (2.0)
Postpartum haemorrhage	10 (4.0)

Perinatal Outcomes

Preterm birth was the most frequent adverse neonatal outcome, occurring in 28.6% of pregnancies. Low birth weight was observed in 21.8% of neonates, while NICU admission was required in 15.1%.

Table 5. Perinatal Outcomes among Women with Thyroid Disorders (N=252)

Outcome	n (%)
Preterm birth	72 (28.6)
Low birth weight	55 (21.8)
NICU admission	38 (15.1)
Respiratory distress	20 (7.9)
Neonatal jaundice	15 (6.0)
Stillbirth	6 (2.4)
Neonatal death	4 (1.6)

Comparison between Thyroid Disorder Cases and Euthyroid Controls

Women with thyroid dysfunction demonstrated significantly higher rates of pregnancy-induced hypertension, preeclampsia, preterm birth, low birth weight, NICU admission, and respiratory distress compared with euthyroid controls.

Table 6. Comparison of Maternal and Neonatal Outcomes between Cases and Controls

Variable	Thyroid disorder (n=252)	Control (n=252)	p-value
Pregnancy-induced hypertension	32 (12.7%)	15 (6.0%)	0.017
Preeclampsia	23 (9.1%)	9 (3.6%)	0.018
Oligohydramnios	18 (7.1%)	10 (4.0%)	0.160
Gestational diabetes	14 (5.6%)	10 (4.0%)	0.440
Placental abruption	5 (2.0%)	3 (1.2%)	0.470
Postpartum haemorrhage	10 (4.0%)	6 (2.4%)	0.340
Preterm birth	72 (28.6%)	35 (13.9%)	<0.001
Low birth weight	55 (21.8%)	27 (10.7%)	0.001
NICU admission	38 (15.1%)	18 (7.1%)	0.009
Respiratory distress	20 (7.9%)	9 (3.6%)	0.048
Neonatal jaundice	15 (6.0%)	11 (4.4%)	0.460
Stillbirth	6 (2.4%)	3 (1.2%)	0.310
Neonatal death	4 (1.6%)	2 (0.8%)	0.410

Additional Obstetric Outcomes

Fetal growth restriction occurred in 11.9% of pregnancies and cesarean section was the predominant mode of delivery, accounting for 59.1% of births.

Table 7. Additional Obstetric Outcomes among Women with Thyroid Disorders (N=252)

Outcome	n (%)
Pregnancy loss before 20 weeks	13 (5.2)
Fetal growth restriction	30 (11.9)
Premature rupture of membranes	23 (9.1)
Cesarean section	149 (59.1)
Intrauterine fetal death	9 (3.6)

Table 8. Comparison of Additional Obstetric Outcomes between Cases and Controls

Outcome	Thyroid disorder (n=252)	Control (n=252)	p-value
Fetal growth restriction	30 (11.9%)	13 (5.2%)	0.013
Premature rupture of membranes	23 (9.1%)	14 (5.6%)	0.180
Cesarean section	149 (59.1%)	112 (44.5%)	0.004
Intrauterine fetal death	9 (3.6%)	3 (1.2%)	0.090

Multivariate Logistic Regression Analysis

After adjustment for maternal age, parity, residence, gestational age at enrollment, and treatment status, thyroid dysfunction remained independently associated with several adverse maternal and neonatal outcomes.

Table 9. Adjusted Logistic Regression Analysis of Adverse Outcomes

Outcome	Adjusted OR	95% CI	p-value
Preterm birth	2.49	1.56-3.98	<0.001
Low birth weight	2.31	1.37-3.89	0.002
NICU admission	2.34	1.28-4.28	0.006
Pregnancy-induced hypertension	2.27	1.16-4.41	0.017
Fetal growth restriction	2.55	1.30-5.01	0.006
Cesarean section	1.82	1.28-2.58	0.001
Premature rupture of membranes	1.73	0.92-3.27	0.089
Intrauterine fetal death	3.08	0.79-12.02	0.104

Table 10. Maternal and Neonatal Outcomes According to Thyroid Disorder Subtype (N=252)

Outcome	Sub-clinical Hypo-thyroidism (n=146)	Overt Hypo-thyroidism (n=81)	Hyper-thyroidism (n=25)	'p' value
Pregnancy-induced hypertension	14 (9.6%)	15 (18.5%)	3 (12.0%)	0.041
Preeclampsia	9 (6.2%)	11 (13.6%)	3 (12.0%)	0.048
Oligohydramnios	9 (6.2%)	7 (8.6%)	2 (8.0%)	0.74
Gestational diabetes	7 (4.8%)	5 (6.2%)	2 (8.0%)	0.68
Placental abruption	2 (1.4%)	2 (2.5%)	1 (4.0%)	0.49
Postpartum haemorrhage	4 (2.7%)	5 (6.2%)	1 (4.0%)	0.37
Preterm birth	34 (23.3%)	29 (35.8%)	9 (36.0%)	0.032
Low birth weight	26 (17.8%)	21 (25.9%)	8 (32.0%)	0.041
NICU admission	18 (12.3%)	14 (17.3%)	6 (24.0%)	0.11
Respiratory distress	8 (5.5%)	8 (9.9%)	4 (16.0%)	0.09
Neonatal jaundice	8 (5.5%)	5 (6.2%)	2 (8.0%)	0.84
Stillbirth	2 (1.4%)	3 (3.7%)	1 (4.0%)	0.38
Neonatal death	1 (0.7%)	2 (2.5%)	1 (4.0%)	0.22
Fetal growth restriction	14 (9.6%)	11 (13.6%)	5 (20.0%)	0.12
Premature rupture of membranes	11 (7.5%)	8 (9.9%)	4 (16.0%)	0.22
Pregnancy loss before 20 weeks	6 (4.1%)	5 (6.2%)	2 (8.0%)	0.56
Intrauterine fetal death	4 (2.7%)	4 (4.9%)	1 (4.0%)	0.68
Cesarean section	80 (54.8%)	53 (65.4%)	16 (64.0%)	0.12

When outcomes were analyzed according to thyroid disorder subtype, women with overt hypothyroidism and hyperthyroidism generally experienced higher rates of adverse maternal and neonatal outcomes than those with subclinical hypothyroidism. Preterm birth occurred in 23.3% of women with subclinical hypothyroidism, compared with 35.8% among women with overt hypothyroidism and 36.0% among those with hyperthyroidism (p=0.032). Similarly, low birth weight was significantly more common among women with overt hypothyroidism and hyperthyroidism than among women with subclinical hypothyroidism (25.9% and 32.0% versus 17.8%, respectively; p=0.041). Pregnancy-induced hypertension and preeclampsia were also significantly more frequent among women with overt hypothyroidism. Although NICU admission, respiratory distress, fetal growth restriction, and cesarean delivery were numerically higher among women with overt thyroid dysfunction, these differences did not reach statistical significance (Table 10).

DISCUSSION

The present prospective observational case-control study evaluated the clinical profile and maternal-perinatal outcomes of 252 pregnant women with thyroid dysfunction compared with 252 euthyroid controls at a tertiary care hospital in Bangladesh. The findings demonstrate that thyroid dysfunction during pregnancy remains an important contributor to adverse obstetric and neonatal outcomes, with associations observed for pregnancy-induced hypertension, preterm birth, low birth weight, NICU admission, fetal growth restriction, and cesarean delivery. These results are clinically important because thyroid disorders are often asymptomatic or nonspecific during pregnancy and may remain undetected without biochemical screening.

Subclinical hypothyroidism was the most common thyroid abnormality in this study, accounting for nearly 58% of thyroid disorders. This pattern is consistent with Bangladeshi and Indian literature in which subclinical hypothyroidism has emerged as the predominant thyroid abnormality detected during antenatal evaluation. Recent regional studies have reported substantial frequencies of thyroid dysfunction in pregnant women, and the observed pattern may reflect interactions between pregnancy physiology, iodine nutrition, delayed diagnosis, and background autoimmune susceptibility.[18-20]

The predominance of women from rural areas in the present cohort reflects the hospital catchment population and is relevant from a public health perspective. Rural and semi-urban women may experience delayed antenatal registration, fewer opportunities for routine laboratory testing, and limited access to endocrine consultation. The Bangladesh Endocrine Society recommendations emphasize the need for context-specific screening and management approaches for thyroid disorders during pregnancy and

postpartum, especially because real-world practice varies widely across clinical settings.[21]

Preterm birth was the most frequent adverse neonatal outcome in this study and remained independently associated with thyroid dysfunction after adjustment for maternal age, parity, residence, gestational age, and treatment status. Maternal thyroid hormones are essential for early placental development, fetal growth, and neurodevelopment, particularly before the fetal thyroid axis becomes fully functional. Inadequate maternal thyroid hormone availability may impair trophoblastic invasion, placental angiogenesis, and vascular adaptation, thereby increasing vulnerability to spontaneous or medically indicated preterm delivery. Classical cohort studies and subsequent reviews have repeatedly described increased obstetric risks among women with untreated overt or subclinical hypothyroidism.[22-24]

Low birth weight and fetal growth restriction were significantly more common among women with thyroid dysfunction. Adequate maternal thyroid hormone concentrations support placental nutrient transfer, fetal oxygenation, and somatic growth. Hypothyroidism may contribute to placental insufficiency through endothelial dysfunction, altered angiogenic balance, and impaired uteroplacental perfusion. These mechanisms are compatible with the increased fetal growth restriction observed in the current study. Similar associations between maternal thyroid parameters and birth outcomes have been demonstrated in population-based and clinical studies, supporting the biological plausibility of the present findings.[25,26]

Pregnancy-induced hypertension and preeclampsia were also significantly more frequent among women with thyroid disorders. Thyroid hormones influence systemic vascular resistance, nitric oxide-mediated vasodilation, endothelial function, and metabolic adaptation during pregnancy. Disruption of these pathways may contribute to abnormal placentation and maternal vascular maladaptation. The association between thyroid dysfunction and hypertensive disorders is particularly relevant in Bangladesh, where hypertensive complications already contribute substantially to maternal morbidity. Early detection and treatment of overt thyroid dysfunction may therefore provide an opportunity to reduce preventable complications.[27]

Neonatal morbidity increased among pregnancies complicated by thyroid dysfunction. NICU admission was more than twice as frequent among neonates born to women with thyroid disorders compared with controls. This is likely explained by a combination of prematurity, low birth weight, respiratory distress, and fetal growth restriction. A systematic review and meta-analysis by Maraka and colleagues also reported increased adverse outcomes among women with subclinical hypothyroidism, although the magnitude of risk varied by diagnostic threshold, treatment status, and population characteristics.[28]

Treatment characteristics represent an important component of the present study. Most hypothyroid women received levothyroxine, while hyperthyroid women were managed with carbimazole under specialist supervision. Women diagnosed and treated earlier in pregnancy appeared to have more favorable outcome patterns than those treated later, although the study was not designed to evaluate treatment efficacy. Evidence from studies of levothyroxine therapy in thyroid autoimmunity and pregnancy suggests that treatment timing, baseline TSH level, antibody status, and adherence may influence outcome benefit. Therefore, future Bangladeshi studies should record treatment initiation, dose titration, biochemical response, and adherence in greater detail.[29]

A small proportion of women with hypothyroidism were managed conservatively without levothyroxine therapy because they demonstrated only mild biochemical abnormalities and remained clinically stable throughout follow-up. Current international guidelines recognize that management decisions in cases of borderline thyroid dysfunction may require individualized assessment based on TSH level, FT4 concentration, gestational age, thyroid autoantibody status, and clinical context. In resource-limited settings, careful biochemical surveillance may be a reasonable approach for selected low-risk patients, although larger studies are needed to determine the optimal management strategy for mild thyroid dysfunction during pregnancy.

Subtype analysis demonstrated a gradient of risk across thyroid disorders, with overt hypothyroidism and hyperthyroidism generally associated with poorer obstetric outcomes than subclinical hypothyroidism. These findings support current guideline recommendations emphasizing early diagnosis and aggressive management of overt thyroid dysfunction during pregnancy. While women with subclinical hypothyroidism also experienced adverse outcomes, the magnitude of risk appeared lower, suggesting that disease severity may influence maternal and neonatal prognosis.

The findings have important implications for antenatal care. Universal thyroid screening remains debated internationally, but targeted screening may miss women without obvious risk factors. This is relevant for Bangladesh, where many women first present to antenatal services after the first trimester and where endocrine services are unevenly distributed. International and regional guidelines increasingly emphasize individualized assessment, trimester-specific interpretation of thyroid tests, appropriate

levothyroxine replacement for hypothyroidism, specialist-led management of hyperthyroidism, and postpartum follow-up when indicated.[30,31]

The question of universal versus targeted thyroid screening during pregnancy remains a subject of ongoing debate. Current international guidelines vary in their recommendations, with some advocating targeted screening of women with recognized risk factors, while others highlight concerns that risk-based approaches may fail to identify a substantial proportion of affected pregnancies. In the present study, many women with thyroid dysfunction did not present with overt clinical manifestations, supporting evidence that symptom-based or risk-based screening alone may miss clinically important disease. In low- and middle-income countries such as Bangladesh, universal screening must be balanced against resource constraints and healthcare priorities. However, the relatively high burden of thyroid dysfunction, combined with the significant costs associated with preterm birth, low birth weight, neonatal intensive care admission, and maternal complications, suggests that early detection may be economically advantageous in the long term. A pragmatic approach may involve integrating serum TSH testing into routine antenatal investigations at the first prenatal visit, particularly in regions with a high prevalence of thyroid disease. From a public health perspective, strengthening antenatal screening programs, ensuring access to affordable thyroid function testing, improving awareness among healthcare providers, and expanding endocrine services in rural and semi-urban areas may contribute substantially to reducing preventable maternal and neonatal morbidity in Bangladesh. Future health-economic studies are needed to evaluate the cost-effectiveness and feasibility of universal antenatal thyroid screening within the Bangladeshi healthcare system.

Several limitations should be acknowledged. This was a single-center study and may not fully represent the wider pregnant population of Bangladesh. Anti-thyroid peroxidase antibody testing was not routinely available; therefore, thyroid autoimmunity could not be assessed. Thyroid autoimmunity may independently influence miscarriage, preterm birth, and neonatal outcomes even among euthyroid women, creating the possibility of residual confounding. Iodine status was not measured, and long-term neurodevelopmental follow-up of offspring was beyond the scope of this study. Future multicenter studies should include thyroid antibody testing, urinary iodine assessment, standardized treatment monitoring, and longer follow-up of neonatal outcomes.[32]

Overall, this study adds to the growing evidence that thyroid dysfunction during pregnancy is associated with clinically meaningful maternal and neonatal morbidity. Strengthening antenatal thyroid assessment, ensuring access to affordable thyroid function testing, and implementing evidence-based treatment protocols may contribute to improved pregnancy outcomes in Bangladesh.

CONCLUSION

Thyroid dysfunction during pregnancy was associated with significantly higher rates of pregnancy-induced hypertension, preterm birth, low birth weight, NICU admission, fetal growth restriction, and cesarean delivery compared with euthyroid controls. Subclinical hypothyroidism was the predominant thyroid abnormality. Early diagnosis, timely treatment, and regular biochemical monitoring should be strengthened within antenatal care services in Bangladesh. Larger multicenter studies incorporating thyroid antibody testing, iodine status assessment, and long-term neonatal follow-up are recommended.

REFERENCES

1. Glinoer D. Regulation of thyroid function during normal pregnancy: importance of the iodine nutrition status. Best Pract Res Clin Endocrinol Metab. 2004; 18(2): 133-152.
2. Lazarus JH. Thyroid function in pregnancy. Br Med Bull. 2011; 97: 137-148.
3. Korevaar TIM, Medici M, Visser TJ, Peeters RP. Thyroid disease in pregnancy: new insights in diagnosis and clinical management. Nat Rev Endocrinol. 2017; 13(10): 610-622.
4. De Groot L, Abalovich M, Alexander EK, Amino N, Barbour L, Cobin RH, et al. Management of thyroid dysfunction during pregnancy and postpartum: an Endocrine Society clinical practice guideline. Thyroid. 2012; 22(1): 1-45.
5. American College of Obstetricians and Gynecologists. Thyroid disease in pregnancy: ACOG Practice Bulletin, Number 223. Obstet Gynecol. 2020; 135(6): e261-e274.
6. Royal College of Obstetricians and Gynaecologists. Management of thyroid disorders in pregnancy. Green-top Guideline No. 76. London: RCOG; 2025.
7. Yusuf HKM, Quazi S, Kahn MR. Iodine deficiency disorders in Bangladesh. Bangladesh Med Res Counc Bull. 2008; 34: 12-18.
8. Ara G, Melse-Boonstra A, Roy SK, Alam N, Ahmed S, Khatun UHF, et al. Sub-clinical iodine deficiency still prevalent in Bangladeshi adolescent girls and pregnant women. Asian J Clin Nutr. 2010; 2(1): 1-12.
9. Shahid MM, et al. Prevalence and incidence of thyroid disorder during pregnancy in Bangladesh: a tertiary care hospital-based study. Sri Lanka J Diabetes Endocrinol Metab. 2021; 11(1).
10. Ferdousi MA, Al Baki A. Prevalence and maternal effects of hypothyroidism in pregnancy. Chattagram Maa-O-Shishu Hosp Med Coll J. 2021; 20(2): 18-21.

11. Sharmen F, Sadaf S, Jabin N, Malik A, Hashem MA, Ali Y. Increased occurrence of hypothyroidism among pregnant women during the first trimester and its correlation with anti-thyroid peroxidase antibody (anti-TPO) and gestational diabetes mellitus in Chattagram region, Bangladesh. Int J Reprod Contracept Obstet Gynecol. 2023; 12(1): 58-66.
12. Goit SK, Fariduddin M, Mustari M, Haq T, Khan MA, Mahjabin S, et al. Thyroid function status and its impact on feto-maternal outcome in pregnant women in Bangladesh: a hospital-based cross-sectional study. Sri Lanka J Diabetes Endocrinol Metab. 2024; 15(1): 11-16.
13. Khan MA, Alam MJ, Goit SK, Fariduddin M. The frequency and pattern of thyroid disorders in pregnant women during the first antenatal visit. J Assoc Clin Endocrinol Diabetol Bangladesh. 2023; 3(2): 40-46.
14. Rajput R, Goel V, Nanda S, Rajput M, Seth S. Prevalence of thyroid dysfunction among women during the first trimester of pregnancy at a tertiary care hospital in Haryana. Indian J Endocrinol Metab. 2015; 19(3): 416-419.
15. Debbarma R, Gothwal M, Singh P, Gupta N, et al. The spectrum of thyroid dysfunction during pregnancy and fetomaternal outcome: a study from the premier institute of western India. Indian J Community Med. 2024; 49(5): 734-738.
16. Alexander EK, Pearce EN, Brent GA, Brown RS, Chen H, Dosiou C, et al. 2017 guidelines of the American Thyroid Association for the diagnosis and management of thyroid disease during pregnancy and the postpartum. Thyroid. 2017; 27(3): 315-389.
17. Bangladesh Endocrine Society. Recommendations for thyroid disorders in pregnancy and postpartum. Dhaka: Bangladesh Endocrine Society; 2025.
18. Mahadik K, Choudhary P, Roy PK. Study of thyroid function in pregnancy and fetal outcomes. BMC Pregnancy Childbirth. 2020; 20: 769.
19. Verma V, Jain M, Gupta NK. Prevalence and pattern of thyroid disorders in pregnancy. Cureus. 2021; 13(9): e18137.
20. Kumar R, Bansal R, Shergill HK. Thyroid dysfunction and fetomaternal outcomes. Clin Epidemiol Glob Health. 2023; 19: 101201.
21. Casey BM, Dashe JS, Wells CE, McIntire DD, Byrd W, Leveno KJ, et al. Subclinical hypothyroidism and pregnancy outcomes. Obstet Gynecol. 2005; 105(2): 239-245.
22. Cleary-Goldman J, Malone FD, Lambert-Messerlian G, Sullivan L, Canick J, Porter TF, et al. Maternal thyroid hypofunction and pregnancy outcome. Obstet Gynecol. 2008; 112(1): 85-92.
23. Allan WC, Haddow JE, Palomaki GE, Williams JR, Mitchell ML, Hermos RJ, et al. Maternal thyroid deficiency and pregnancy complications: implications for population screening. J Med Screen. 2000; 7(3): 127-130.
24. Wang W, Teng W, Shan Z, Wang S, Li J, Zhu L, et al. The prevalence of thyroid disorders during early pregnancy in China: the benefits of universal screening in the first trimester of pregnancy. Eur J Endocrinol. 2011; 164(2): 263-268.
25. Medici M, Timmermans S, Visser W, de Muinck Keizer-Schrama SMPF, Jaddoe VWV, Hofman A, et al. Maternal thyroid hormone parameters during early pregnancy and birth outcomes: the Generation R Study. J Clin Endocrinol Metab. 2013; 98(1): 59-66.
26. Maraka S, Ospina NMS, O'Keeffe DT, Espinosa De Ycaza AE, Gionfriddo MR, Erwin PJ, et al. Subclinical hypothyroidism in pregnancy: a systematic review and meta-analysis. Thyroid. 2016; 26(4): 580-590.
27. Krassas GE, Poppe K, Glinoer D. Thyroid function and human reproductive health. Endocr Rev. 2010; 31(5): 702-755.
28. Negro R, Formoso G, Mangieri T, Pezzarossa A, Dazzi D, Hassan H. Levothyroxine treatment in euthyroid pregnant women with autoimmune thyroid disease: effects on obstetrical complications. J Clin Endocrinol Metab. 2006; 91(7): 2587-2591.
29. Singh S, Sandhu S. Thyroid disease and pregnancy. In: StatPearls. Treasure Island (FL): StatPearls Publishing; 2025.
30. Dong AC, Stephenson MD, Stagnaro-Green A. The need for dynamic clinical guidelines for thyroid disease and pregnancy. Lancet Diabetes Endocrinol. 2019; 7(4): 265-267.
31. Derakhshan A, Peeters RP, Taylor PN, Bliddal S, Carty DM, Meems M, et al. Association of maternal thyroid function with birthweight: a systematic review and individual-participant data meta-analysis. Lancet Diabetes Endocrinol. 2020; 8(6): 501-510.
32. Plowden TC, Schisterman EF, Sjaarda LA, Perkins NJ, Silver R, Radin R, et al. Thyroid-stimulating hormone, anti-thyroid antibodies, and pregnancy outcomes. Am J Obstet Gynecol. 2017; 217(6): 697.e1-697.e7.

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