



Daffodil
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PROJECT REPORT

Questionnaire Survey On “Knowledge And Awareness Of Thyroid Disease Among People Of Tangail In Bangladesh”.

Submitted To

Department of Pharmacy
Faculty of Allied Health Sciences
Daffodil International University

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APPROVAL

This project paper, titled “Questionnaire Survey On Knowledge And Awareness Of Thyroid Disease Among People Of Tangail In Bangladesh,” was submitted to the Faculty of Allied Health Sciences, Department of Pharmacy, Daffodil International University. Its style and content were approved, and it was recognized as meeting the requirements for the degree of Bachelor of Pharmacy to a satisfactory extent.

Supervised By



Farhana Israt Jahan

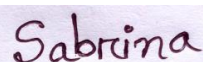
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CERTIFICATE

This is to certify that the research results presented in this project are new and have never been fully submitted for such a degree from in this institution. Based on the results of the author's (Sabrina Jahan, ID: 191-29-161) own investigation, the entire project which has been filed as just a research study toward a Bachelor of Pharmacy degree, is currently in existence.

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DECLARATION

I can declare that, I have successfully completed the requirements for the degree of Bachelor of Pharmacy at Daffodil International University (DIU) under the supervision of Farhana Israt Jahan, Associate Professor, Department of Pharmacy, Faculty of Allied Health Sciences (FAHS). In addition, I declare that no portion of my project has ever been submitted to some other university for consideration as a candidate for a bachelor's or other degree.

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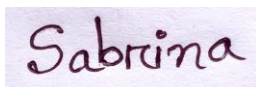
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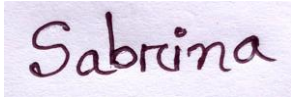
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A rectangular box containing a handwritten signature in dark ink that reads "Sabrina".

Author

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ABSTRACT

The thyroid gland's ability to function is impacted by the medical condition known as thyroid disease. The thyroid gland is an endocrine organ since it is situated in the upper part of the neck that generates thyroid hormones that circulate in the blood to assist control many other organs. These hormones often control how the body uses energy and how infants and children develop. Heart rate, mood, metabolic rate, metabolism, bone growth, pregnancy and many other bodily processes can all be impacted by thyroid problems.

Finding out the amount of knowledge and awareness people in Tangail had about thyroid disease was the study's main objective. The study used a 100-person from the locality of Tangail and response was ended after the desired number was reached.

In this survey, out of 100 participants, 43 thyroid patients were found. Among them 83.72% female and 16.28% male and they were in are between 20 to above 35 years old. Patients are suffering from various types of thyroid disease. Among them most common thyroid disease was hypothyroidism which was found in 48.84% patients, after that hyperthyroidism was 13.95%, goiter was 9.3% and others 27.9%. From my survey I found that, most of the patients (67.44%) were not taken medicine but some patients (32.56%) were taken medicine. Also, most of the patients don't have knowledge about the importance of iodine for the production of thyroid hormones.

Only a small number of patients are questioned for the study, which can also be done with Bangladesh's large scale population.

CHAPTER-1

INTRODUCTION

1.Introduction:

The thyroid gland, an important endocrine gland with the shape of a butterfly, is located in the lower neck. It can be found in the trachea's front and sides, below the larynx. In addition to being essential for calcium metabolism, it plays an important function in controlling BMR (basal metabolic rate), and it also promotes somatic and psychological growth (1). Thyroid hormones, which are produced by the thyroid gland, are important for oxygen uptake, cardiac contractility, stimulating protein synthesis, and controlling bone formation and resorption. They also affect how phospholipids, cholesterol, and carbohydrates are metabolized. In addition, they help in the fetal nervous system's growth and development (2).

Thyroid diseases are a relatively prevalent medical condition. The condition of the thyroid gland's functions affects the symptoms of thyroid diseases. The hypothalamus pituitary axis is a higher region in the brain that can indirectly affect the thyroid's function or directly affect the thyroid gland itself (more frequently).

Age, ethnicity, and geographic factors, particularly in iodine deficient areas, all affect the distribution of the diseases. Thyroid diseases are among the most common medical conditions, but they are also among the most chronically undiagnosed and untreated diseases worldwide.

Patients with thyroid diseases may show a wide range of symptoms during a clinical evaluation, including those affecting the endocrine, cardiovascular, central nervous, musculoskeletal, hematological, reproductive, gastrointestinal, and dermatological systems of the body (3).

1.1 Various Types of Thyroid Disease

- Hyperthyroidism.
- Hypothyroidism.
- Goiter.
- Thyroiditis.
- Thyroid nodules.
- Thyroid cancer.

1.1.1 Hyperthyroidism:

A medical condition known as hyperthyroidism is characterized by a high level of free triiodothyronine (T3) and/or thyroxine (T4) in the blood. Hyperthyroidism is a condition that can be caused by a wide range of recognized causes and diseases, including those that are thyroid gland-specific and those that are not. It may be developed from thyroiditis in various forms or by metastatic tumors. It may also be caused by acute loss of thyroid follicles and follicular epithelium. Thyroid dysfunction can also be brought on by a number of medications and anti-cancer medications (4).

Causes

Many medical conditions affecting the thyroid gland can lead to hyperthyroidism.

- **Grave's disease:** TMNG (toxic multinodular goiters) and toxic adenomas are the most common cases of Grave's disease (GD), respectively. TRAb (thyrotropin receptor antibodies) generate, bind, and then excite the TSH (thyroid stimulating hormone) receptors in GD, an autoimmune disorder that develops when immunotolerance is lost. The synthesis and production of thyroid hormones are increased as a result (5).
- **Toxic adenoma:** Monoclonal benign thyroid tumors called toxic adenomas automatically secrete too much thyroid hormone. Patients having a single autonomous thyroid nodule and those having multiple autonomous thyroid nodules (commonly known as Plummer's disease), either of which may develop hyperthyroidism (6).
- **Thyroiditis (inflammation):** Subacute thyroiditis is thyroid gland inflammation that frequently accompanies a viral infection of the upper respiratory tract and results in further release of thyroid hormone that has already been generated. Thyroid hormone leaks into the bloodstream and leads to hyperthyroidism as a result of thyroid gland inflammation. On the other side, thyroid gland inflammation after delivery is known as postpartum thyroiditis. It is a temporary type of hyperthyroidism that may appear 6 weeks to 6 months after delivery. There is a high likelihood that it may return during consecutive pregnancies (7).
- **Excess iodine intake:** Iodine in excess serves as a more frequent substrate for the synthesis of thyroid hormones. It occurs more frequently in regions where iodine

deficiency and goiter are endemic. Iodine may stimulate the immune system, causing autoimmune thyroiditis and subsequently hyperthyroidism. Grave's disease is more common when there is a high iodine intake (7).

- **Toxic multinodular goiter:** In places with iodine deficiency, toxic multinodular goiter can be 10 times more prevalent and causes 5% of situations of hyperthyroidism. It often affects people over 40 who have had a goiter for a while, and it typically develops more slowly than Graves' disease (8).

Symptoms

Most persons who have hyperthyroidism experience a combination of the following symptoms:

- Weight loss despite an increase in hunger; heat-related symptoms (heat sensitivity, perspiration, and polydipsia).
- Tremor, discomfort, anxiety, tiredness.
- Weakness, sleep disturbances, and lack of concentrate.
- Palpitations.
- Shortness of breath and dyspnea.
- Hyperexcitability, nausea and vomiting.
- Increased sweating.
- Diplopia, eyelid swelling, ocular irritation, and pain or discomfort behind the eyes (9).

1.1.2 Hypothyroidism:

Hypothyroidism is characterized by the thyroid gland's inability to produce enough thyroid hormone to meet the body's metabolic needs. Hypothyroidism that is left untreated may lead to high blood pressure, dyslipidemia, infertility, cognitive decline, and neuromuscular dysfunction. Females are more likely to experience it than males, and the prevalence rises with age. Primary gland failure or inadequate thyroid gland activation by the hypothalamus or

pituitary gland can also result in hypothyroidism. After neck radiation, radioiodine therapy, and thyroid surgery, iatrogenic types of hypothyroidism develop (10).

Causes

Triiodothyronine (T3) & thyroxine (T4), two thyroid hormones, are insufficiently produced in hypothyroidism. These hormones have an impact on heart rate, metabolism, and body temperature.

The thyroid could be underactive for several causes, including:

- **Hashimoto's thyroiditis:** Autoimmune thyroid disease, where Hashimoto's thyroiditis constitutes one of the parts, is the most frequent cause of hypothyroidism. It might start off quickly or gradually build over time.
- **Thyroid ablation:** Thyroid ablation is the result of the surgical removal of all or a portion of the thyroid gland for Grave's disease, thyroid nodules, or both. The remaining portion of the gland might be able to produce sufficient thyroid hormone to maintain normal blood levels. To experience hypothyroidism, the thyroid gland must be completely destroyed at least 90% of it.
- **Medication:** In certain cases, medications may contribute to hypothyroidism by inhibiting the production of thyroid hormones as is normal. Patients who are on lithium, interferon alpha, amiodarone, and interleukin-2 frequently develop it. Patients who have an inherited susceptibility to developing autoimmune thyroid disease are most likely to get hypothyroidism when using these medications.
- **Iodine deficiency:** Since iodine is a key component in the manufacture of thyroid hormones and is concentrated in the thyroid, any imbalance in the amount of iodine in the blood could lead to hypothyroidism. Severe hypothyroidism can affect 5% to 15% of people in regions of the world when the diet contains very little iodine (11).

Symptoms

Individuals with hypothyroidism frequently experience a variety of relatively generic symptoms, including:

- Weakness.
- Constipation.
- Weight gain.
- Depression.
- Impaired cognition.
- Dry skin.
- Thin hair and nails.
- Low appetite.
- Carpal tunnel syndrome.
- Dysmenorrhea.

When compared to euthyroid patients, several of these symptoms are much more common in those with overt and subclinical hypothyroidism. Although, the presence or absence of these symptoms does not reliably indicate whether a person has thyroid disease. The symptoms of hypothyroidism resemble those of aging and, in some people, continue even after levothyroxine has been used to optimize the TSH level (12).

1.1.3 Goiter:

A goiter is an enlarging of the thyroid gland. TSH levels rise as a result of decreased thyroid hormone production brought on by biosynthetic flaws and iodine deficiency, which causes goiter. In order to make up for the decreased hormone synthesis, this promotes thyroid development. Along with subsequent fibrosis brought on by the autoimmune process, elevated TSH also appears to have a role in the goitrous type of Hashimoto's thyroiditis, which results in an enlarged thyroid (13).

Causes

The following are some common causes of goiters:

- Iodine deficiency, which is typically observed in areas that do not utilize iodized salt, is the most frequent cause of an enlarged thyroid in the world.
- Selenium deficiency is seen as a significant factor as well.
- Hashimoto's thyroiditis is the most typical cause of an enlarged thyroid in areas that use iodized salt.
- Cyanide poisoning, which frequently occurs in tropical nations where the cyanide-rich cassava root is used as a staple meal, can also result in goiter (14).

Symptoms

A goiter can occasionally not be seen and may not even cause any symptoms.

These are some examples of symptoms when they are present:

- A neck swell or enlargement that is clearly apparent.
- A soft bump that can be touched.
- Feeling heavy in the neck.
- An esophageal or throat pressing sensation.
- Swallowing issues or a sensation that food is trapped in the throat.
- Breathing problems or breathlessness, especially at night.
- Coughing.
- Hoarseness.
- Discomfort when using ties, scarves and turtlenecks (15).

1.1.4 Thyroiditis:

Thyroiditis is an inflammatory condition of the thyroid gland. It can be painful and irritating when carried on by an infection, radiation treatment or trauma or it can be painless when carried on by autoimmune diseases, drugs or an idiopathic vascular process. Hashimoto's disease, postpartum thyroiditis, subacute lymphocyte thyroiditis, subacute granulomatous thyroiditis and drug-induced thyroiditis are the most prevalent types. The condition of the patient may be euthyroidism, hyperthyroidism, hypothyroidism or it may change with time. Also, in most patients with thyroid inflammation carried on by a virus, radiation, trauma, autoimmune disease or medication, the amount of radioactive iodine taken up by the gland is decreased. The main goals of treatment are to restore euthyroidism and, if present, to symptomatically relieve thyroid pain and tenderness (16).

Causes

There are several possible causes of an enlarged thyroid. When the thyroid is attacked by the body's immune system, it frequently stops working properly and either produces excess or insufficient thyroid hormone. Infection, drug interactions, thyroid nodules, inflammation, iodine shortage and postpartum reactions are other potential causes of enlarged thyroid glands (17).

Symptoms

Several symptoms of thyroiditis may appear. Depending on what type of thyroiditis a person has, an inflamed thyroid typically results in hypothyroidism or hyperthyroidism symptoms.

Hashimoto's thyroiditis patients typically suffer the following hypothyroidism symptoms:

- Fatigue.
- Gaining weight.
- Drier skin.
- Depression.

- A low tolerance for exercise.
- Constipation.

Typical hyperthyroidism symptoms include the following:

- Loss of weight.
- Increased appetite.
- Palpitations.
- Sweating more than usual.
- Rapid heartbeat, trembling, clammy palms, and eye signs (lid lag, lid retraction, and exophthalmos) (18).

1.1.5 Thyroid nodules:

A thyroid nodule is a single thyroid gland lesion that is radiologically different from the thyroid parenchyma around it. The frequency of thyroid nodules in the overall population is significant; the percentages vary based on the method of discovery, which ranges from 2-6% by palpation to 19-35% by ultrasound to 8-65% by autopsy data. Thyroid nodules are typically found coincidentally during a radiologic technique such as an ultrasonography, computed tomography, or magnetic resonance imaging of the neck; however, with the expanded use of sensitive imaging methods, thyroid nodules are being discovered incidentally with greater frequency in recent years. Although thyroid nodules are frequent, eliminating malignancy is the main clinical relevance of these lesions (19).

Causes

Thyroid nodules can form for a variety of causes, including:

- **Iodine deficiency:** Iodine is an important part of thyroid hormones; without an appropriate supply, the gland enlarges. Thyroid nodules are frequently developed in people who have genetic flaws in the proteins blueprints that allow the thyroid gland to

produce thyroid hormone (such as, changes to the molecular pumps that allow the thyroid to collect iodine inside of itself).

- **Thyroid cyst:** Fluid, known as cystic degeneration, can occasionally develop in thyroid nodules as a result of bleeding from the thyroid tumor's fragile blood vessels. The front of the neck may occasionally experience a sudden start of pain and swelling, which usually goes away over the course of several days.
- **Thyroiditis:** Thyroid nodules can develop as a result of thyroid gland inflammation (thyroiditis). Hashimoto's thyroiditis, another name for autoimmune thyroiditis, is a condition where a person's immune system attacks its own thyroid gland, resulting in inflammation, swelling, and frequently lifelong hypothyroidism (20).

Symptoms

The majority of thyroid nodules are symptomless. Until it begins to grow, we might not even be aware that there is one. Sometimes a big nodule can result in the following symptoms:

- The upper part of the neck has a lump.
- Pain.
- Hoarseness.
- Difficulty swallowing.
- Breathing difficulties (21).

1.1.6 Thyroid cancer:

The most prevalent endocrine malignancy is thyroid cancer, and during the past few decades, its prevalence has steadily increased. A variety of tumors with surprisingly distinct characteristics make up thyroid cancer. Healthcare providers should be in touch with the management concepts for thyroid cancer due to the increased incidence of this disease and recent developments in its treatment (22).

Causes

Most thyroid cancer cases are not clearly caused. However, there are some things that can increase our chances of having it.

- **Genetic syndromes inherited:** DTC (differentiated thyroid cancer) occurs in hereditary syndromes like Gardner, Cowden, or Werner syndromes. When two or more first-degree family members are identified as having DTC without having another abnormality, the condition is known as familial non-medullary thyroid carcinoma (FNMTTC). It displays autosomal dominant behavior that has irregular penetrance and inconsistent expressivity.
- **Iodine deficiency:** In areas with high dietary iodine levels, PTC (papillary thyroid cancer) develops more frequently. Conversely, FTC (follicular thyroid cancer) is more common in countries with iodine deficiency.
- **Radiation exposure:** One of the most prevalent causes for thyroid cancer is exposure to external radiation in the head and neck area. In the past, people who had acne or big tonsils had radiation therapy. Today, mantle radiation may still be given to cancer patients with conditions like Hodgkin disease. Additionally, thyroid cancer incidence has been found to be higher among kids who received radioactive fallout caused by the Chernobyl nuclear accident (23).

Symptoms

There are initially very few symptoms. But as it develops, we might observe one or more of the following issues:

- Throat and neck ache.
- A crick in the neck.
- Having trouble swallowing.
- Changes in voice and hoarseness.
- Cough.

1.2 Diagnosis of Thyroid Disease

Blood tests: Thyroid testing commonly involves blood tests. It's likely that the provider may ask that to make another appointment to have the blood tests completed because they rarely happen within a single day of our initial appointment.

The most typical blood tests for thyroid conditions look for:

- **TSH (Thyroid stimulating hormone):** The first line of screening for thyroid problems is TSH testing. Since the late 1980s, a variety of highly sensitive third-generation immunometric assays have been employed to measure TSH levels as low as 0.01 mIU/L. However, care must be used when using TSH testing exclusively in hospitalized patients, during the first stages of medical treatment for hyper- and hypothyroidism, and for secondary hypothyroidism. Testing for free thyroid hormones is important in these circumstances as well. In the absence of TSH testing, subclinical thyroid dysfunction could be misdiagnosed as overt thyroid disease or secondary hypothyroidism, or non-thyroidal disease could be mistaken for primary hyperthyroidism or euthyroidism. In addition, since improvements in total thyroid hormone levels tend to follow TSH responses, it is crucial to monitor the latter throughout the initial management for hyperthyroidism and hypothyroidism in order to properly adjust drug dosages. It's also necessary to remember that TSH levels may rise with age as a result of comparatively increased concentrations of physiologically inactive isoforms of the hormone.
- **T4 (Thyroxine):** Changes in transthyretin and albumin, the other thyroid hormone-binding proteins, do not extremely impact the levels of thyroid hormones. However, familial dysalbuminemic hyperthyroxinemia (FDH) is accompanied by an increase in total T4. In clinically euthyroid individuals, FDH is an uncommon autosomal dominant disease linked to an albumin variation with higher affinity for T4. The whole thyroid hormone testing has been replaced by testing of free thyroid hormones, the physiologically active hormones.
- **T3 (Triiodothyronine):** T3 is present in the blood in picomolar levels, whereas total thyroid hormones can be found in nanomolar levels. Free thyroid hormones can be more challenging to quantify exactly and precisely. The bound thyroid hormones must be taken out in order to measure the small amounts of free hormones directly. While

equilibrium dialysis & ultrafiltration prior to direct determinations of T3 improve accuracy, their technical difficulty and high expense have limited its application to research purposes primarily (24).

Imaging tests: Blood tests frequently allow doctors to have a better understanding of the situation. However, there are times when the doctor may decide to request imaging testing, particularly if they detect thyroid nodules or an enlarged thyroid.

These imaging tests could consist of:

- **Ultrasound:** The most sensitive imaging technique for examining the thyroid gland and any accompanying abnormalities is high-resolution ultrasonography. Ultrasound scanning uses no ionizing radiation, is non-invasive, widely accessible, and less expensive. Additionally, real-time ultrasound imaging supports thyroid disease treatment interventions by guiding diagnostic and therapeutic treatments (25).
- **Thyroid nuclear scan or radioactive iodine uptake test:** Thyroid scintigraphy and assessment for radioactive iodine intake were once common methods for determining thyroid function. Sensitive in vitro assays for thyroid function have essentially taken the place of this application. The evaluation of hyperthyroid patients still relies heavily on radioactive iodine uptake, and thyroid imaging is helpful for diagnosing hyperthyroidism, nodules of the thyroid, differentiated thyroid carcinoma, or ectopic thyroid tissue (26).
- **MRI or CT scans:** A thyroid mass greater than 3 cm in size and the difference between a thyroid mass and an adjacent neck mass are assessed using CT and MR imaging. These techniques enable examination of the nearby larynx and trachea to identify vascular invasion, luminal constriction, and displacement by malignant thyroid tumors (27).

1.3 Treatment of Thyroid Disease

Medication or, in certain situations, surgery can be used to treat thyroid diseases. The specific thyroid condition will determine the course of treatment.

Thyroid medications

The preferred antithyroid drug is methimazole. However, older persons may be more susceptible to medication side effects and hyperthyroidism recurrence after pharmacological therapy. Also, beta-adrenergic blockade is used to treat the symptoms of hyperthyroidism in older people. Systolic blood pressure and heart rate are both lowered by beta-adrenergic blockade. Additionally, it may reduce trembling, agitation, emotional instability, and intolerance to exercise. When a patient has atrial fibrillation, anticoagulation may be necessary.

Levothyroxine dosage requirements for hypothyroidism are frequently lower in older people. The causes of this could include reducing metabolic clearance, underlying thyroid dysfunction that is slowly progressing, a decline in body mass, and drug interactions (28).

Thyroid surgery

For many years, surgery has been the get-it-to-treatment for a variety of thyroid problems, both benign and malignant. Surgery has changed over time in response to study findings, therefore it has not been constant. Surgery has generally developed to be as organ-preserving as possible in benign situations. However, in some cases, a more extensive degree of resection appears necessary in order to minimize the chance of recurrence. Recently, both benign and malignant thyroid gland problems have been successfully treated using minimally invasive surgery.

If a restricted surgical extent is acceptable, such as in patients with micro-PTC, minimally invasive surgery could grow into a desirable option to open surgery in the event of malignant conditions. Surgery will undoubtedly continue to be a key component of treating thyroid conditions, and it may become more frequently based on unique results rather than broad guidelines (29).

1.4 Lifestyle Risk Factors of Thyroid Disease

Thyroid diseases are more likely to occur because of specific lifestyle factors. They consist of:

- Smoking, since tobacco includes chemicals that have a negative impact on the thyroid gland, producing inflammation and inhibiting iodine absorption as well as thyroid hormone production.
- Psychological stress, such as going through a divorce or losing a family member or close friend.
- Thyroid trauma or infection.
- High doses of some medications, such as lithium (included in many mood stabilizers), and iodine, have been utilized in the past.

1.5 Prevention of Thyroid Disease

Being checked for thyroid disease when there is an increased risk of the condition and obtaining early treatment helps prevent major disease complications, such as coma or heart failure. But there is no effective strategy to prevent thyroid disease.

Thyroidologists have been studying things outside iodine that may have an impact on thyroid health for a long time; of the many factors that have been shown to have some impact on thyroid growth and function, alcohol and tobacco use are believed to be more significant.

- **Quitting smoking:** Smoking represents one of the main avoidable causes of many diseases and deaths. The human body is exposed to a variety of chemical compounds from cigarette smoking, some of which may have various effects on the thyroid gland. The serum free T4 and TSH are both slightly increased and decreased by smoking tobacco. Smoking has been linked to an increased risk of Graves' hyperthyroidism and, in particular, Graves' orbitopathy. So, it may be believed that quitting smoking, which is advised for community health, could result in a decrease in the prevalence of thyroid diseases as a whole. However, people may suffer a change in the kind of thyroid disease.

- **Alcohol Use:** Abuse of alcohol significantly increases morbidity and mortality. However, researchers from Denmark claim that moderate alcohol consumption may lower the risk of Graves' disease with hyperthyroidism, whereas other researchers report contradictory findings. Three studies found no impact for alcohol consumption in Graves' patients, while one showed a lower risk in women but not in men.
- **Thyroid autoimmunity:** Thyroid autoimmunity, which is caused by a genetic disorder in immune surveillance that results in altered immune responsiveness and abnormal regulation of antigen presentation in the gland, is represented by infiltration of activated T lymphocytes within the thyroid gland as well as elevated thyroid autoantibodies that in the serum (30).

CHAPTER-2

OBJECTIVES

2. Objectives:

2.1 General objectives of this study

This investigation's objective was to evaluating the knowledge and awareness of the Tangail population about thyroid gland and its disorders in Bangladesh.

2.2. Specific objectives of this study

- To know about different types of Thyroid disease.
- To identify Thyroid disease pathophysiology.
- To determine Thyroid disease's causes and lifestyle risk factors.
- To be aware of the different types of Thyroid disease treatments, as well as available preventative measures.
- The diet's preferred foods will be known.
- To determine knowledge and awareness about Thyroid disease among male and female participants.
- To understand challenges and risks in implementing and maintain a Thyroid disease screening system.
- To accurately and confidently, and with high specificity and sensitivity, identify Thyroid disease in routine clinical practice.

CHAPTER-3

METHODS

3. Methods:

3.1 Period and Target Population

This study took place in the Tangail district using the local community as the target population. This happened between the months of February and March 2023.

3.2 Design of the Study

By creating structured questions for the local community, this offline survey was completed in the Tangail district of Bangladesh. Since thyroid disease is more common in women, my target was more women than men. The target audience was approached and asked to respond with questions on paper for the study, which was fully offline and provided with self-administered surveys in paper and pen formats. An offline participant responds.

3.3 Questionnaire Development, Pretesting, and Validation

After conducting a thorough literature & book study focused on people's awareness about thyroid disease, that had already been published in various journals, an initial questionnaire was developed. This was done with the questions from the numerous works of literature that had previously been published from Saudi Arabia, India, Japan, the United States, and many other European nations to test the quality of the questions. Before selected as the final question, this question was reviewed by a professor from Daffodil International University. Four categories made up the final question: participant demographics, knowledge, attitude, and experience.

3.4 Sample Size and Sampling Technique

A convenience sampling technique was used to get the data for this investigation.

The study's sample size was 100, and feedback stopped after the goal of 100 was reached.

3.5 Data Analysis

People return filled-out surveys, which are then collected and analyzed to provide the results. To arrive at the results, the statistics were conducted using MS Excel. The final data was expressed as frequencies and percentages.

My survey was carried out between the months of February and March 2023 and asked the following questions:

- Patient name.
- Gender.
- Age.

Questions are:

1. Do you know about the thyroid disease?
2. Have you ever suffered or are you now suffering from any thyroid disease?
3. What is the name of the thyroid condition from which you suffer?
4. Do you face any symptoms that happens with thyroid disease, such as....
5. Have you heard of any medical tests to find thyroid disease?
6. Are you pregnant?
7. Do/did you have thyroid disease during pregnancy?
8. Which type of medications are you receiving for thyroid disease?
9. Do you know the name of some foods/fruits that helps to keep thyroid hormone level normal?
10. Do you know that iodine helps to produce thyroid hormones?

CHAPTER-4

RESULTS & DISCUSSION

4. Results & Discussion:

In this survey, 100 people were involved. Among them, 49% people were know about the thyroid disease and 51% people were not. Out of the 100 respondents, 43 were suffering from thyroid disease. Among them 36 (83.72%) were female and 7 (16.28%) were male.

Table 4.1: Know about the thyroid disease.

From my survey I've noticed that, most of the people don't know about the thyroid disease.

Know about thyroid disease	No. of people	Percentage
Yes	49	49%
No	51	51%

Table 4.1 show that, 49% people were known about the thyroid disease but 51% people were not known.

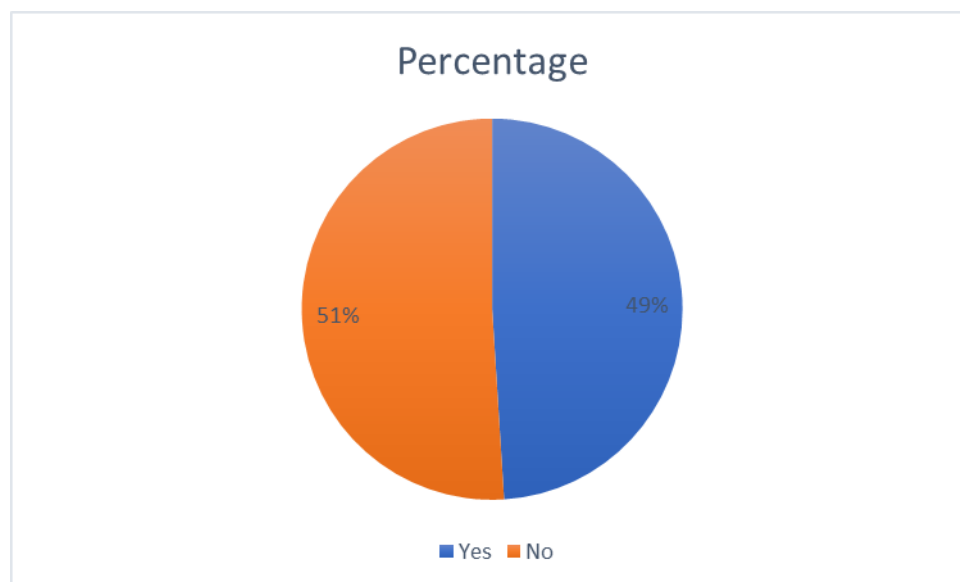


Chart 1: Percentage of people know about the thyroid disease.

Table 4.2: Thyroid disease patients according to gender:

According to the results of my survey, females are more likely than males to have thyroid disease.

Gender	No. of patients	Percentage
Female	36	83.72%
Male	7	16.28%

Table 4.1 show that, patients with thyroid disease were more likely to be female 83.72% than male 16.28%.

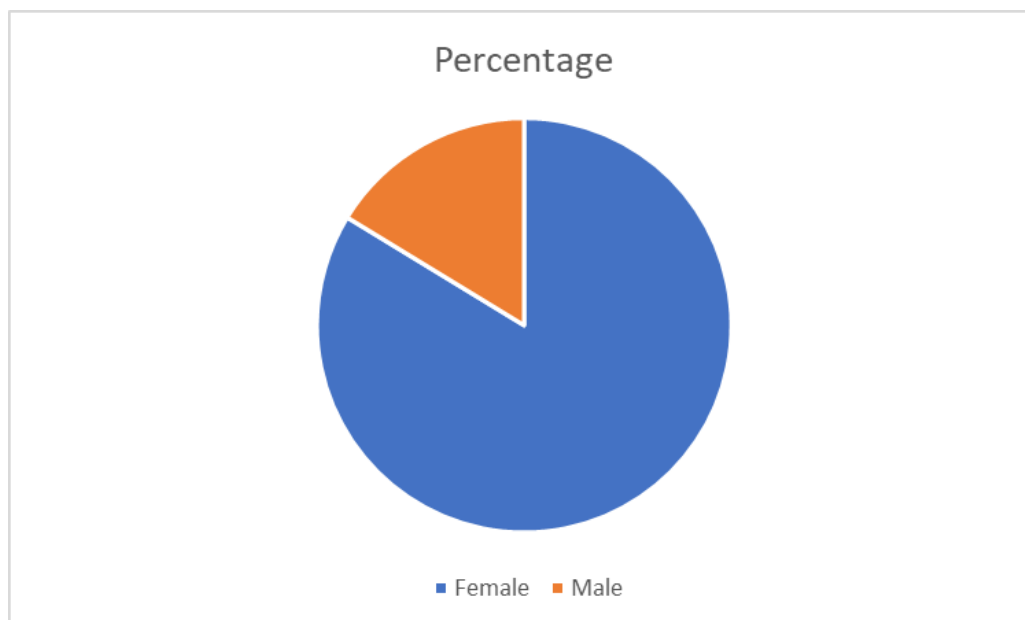


Chart 2: Percentage of thyroid disease patients according to gender.

Table 4.3: Thyroid disease patient's years of age:

According to my survey, most of the patients are between the ages of 20 to above 35 years old.

Age	No. of patients	Percentage
20-25	3	6.98%
26-30	9	20.93%
31-35	17	39.53%
Above 35	14	32.56%

Table 4.2 show that, age 20-25 years were 6.98% and it's the lowest level age of thyroid disease, 26-30 years were 20.93%, 31-35 years were 39.53% and it's the highest level age of thyroid disease, above 35 years were 32.56%.

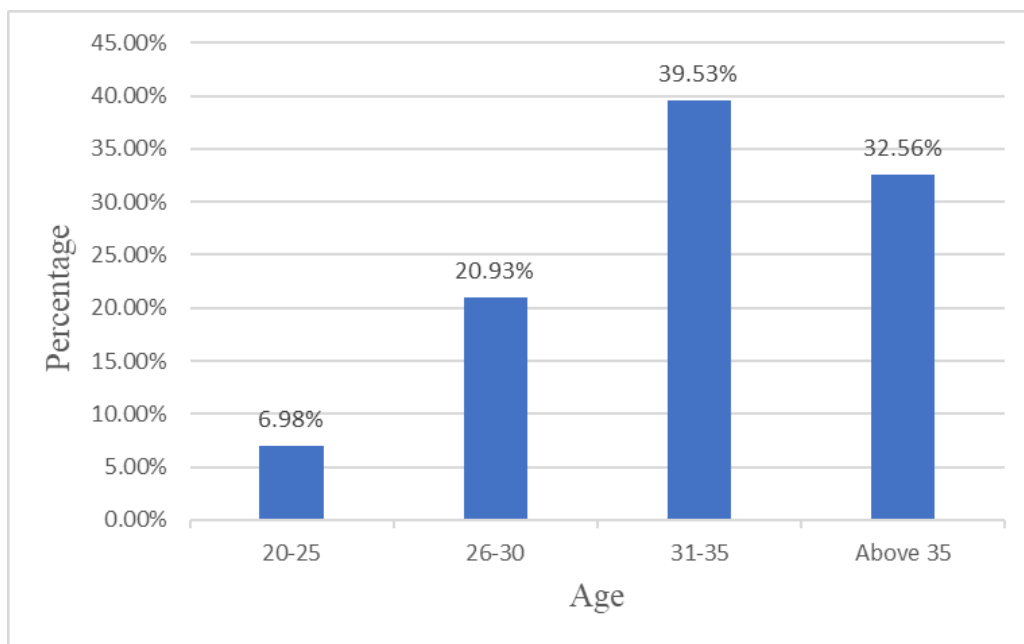


Chart 3: Percentage of thyroid disease patient's years of age.

Table 4.4: Various types of thyroid disease:

There are various thyroid conditions. The analysis of my survey got me to identify the following thyroid diseases. Here, I'll list their percentages and then show the outcome on a graph.

Types of thyroid disease	No. of patients	Percentage
Hypothyroidism	21	48.84%
Hyperthyroidism	6	13.95%
Goiter	4	9.3%
Others	12	27.9%

Table 4.3 shows various types of thyroid disease. Here, hypothyroidism were 48.84% and it's on the top level, hyperthyroidism were 13.95%, goiter were 9.3% and others 27.9%.

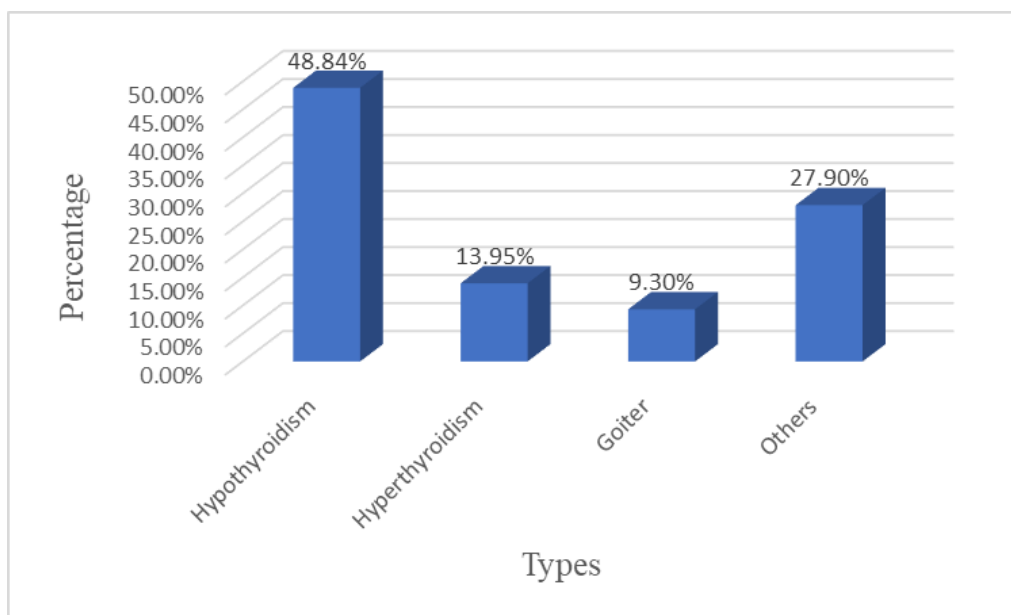


Chart 4: Percentage of types of thyroid disease.

Table 4.5: Symptoms of thyroid disease.

The study of my survey got me to know the following symptoms. So, I'll list their percentages and then show the outcome on a graph.

Symptoms	No. of patients	Percentage
Mood swings	23	53.49%
Feeling tired all the time	3	6.97%
Muscle weakness	2	4.65%
Nervousness and anxiety	9	20.93%
Others	6	13.95%

Table 4.5 show that, large number of patients have mood swings 53.49%, feeling tired all the time were 6.97%, muscle weakness were 4.65%, nervousness & anxiety were 20.93% and others 13.95%.

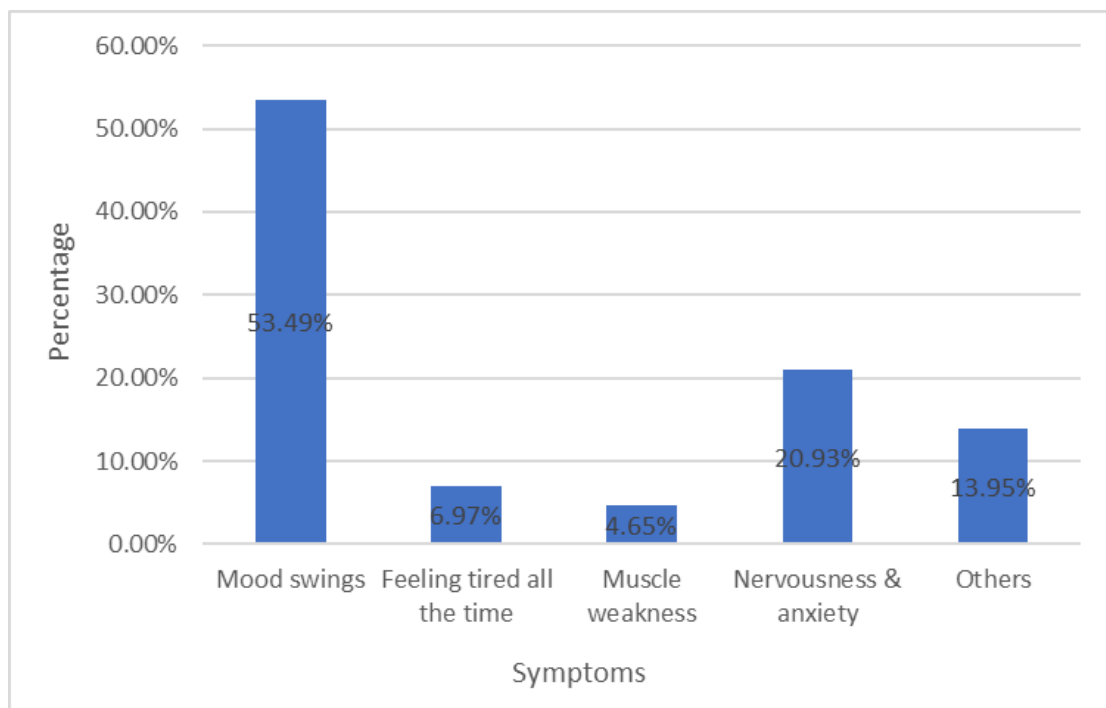


Chart 5: Percentage of symptoms of thyroid disease.

Table 4.6: Medical test for the detection of thyroid disease.

According to the result of my survey, most of the patients have tested for the detection of thyroid disease.

Medical test	No. of patients	Percentage
Yes	27	62.79%
No	16	37.20%

Data in table 4.6 show that, 62.79% patients have tested for the detection of thyroid disease and 37.20% patients haven't tested.

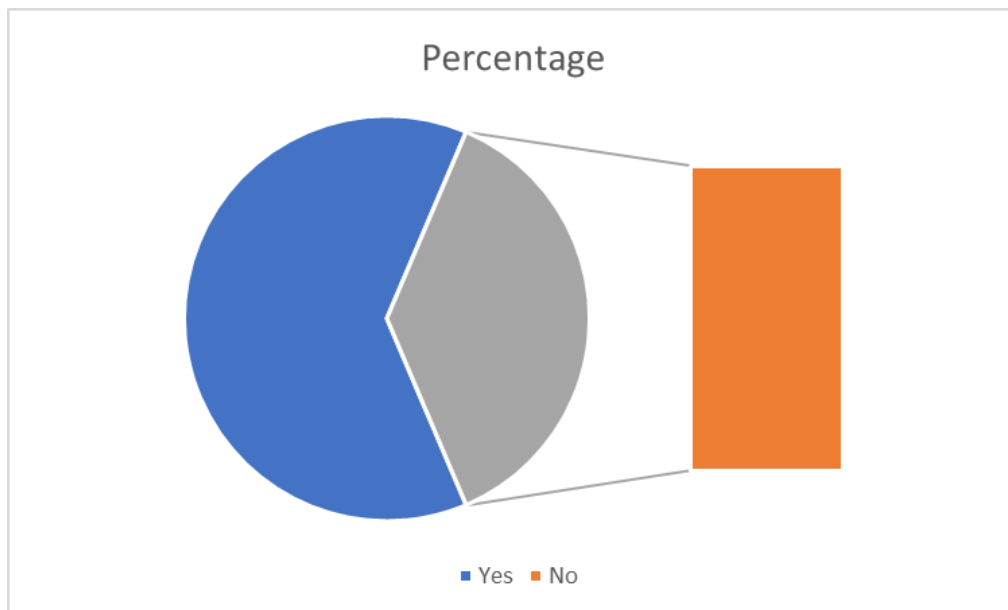


Chart 6: Percentage of medical test for the detection of thyroid disease.

Table 4.7: Thyroid disease patients during pregnancy:

During pregnancy, thyroid problems are common. From the study of my survey I've noticed that, out of the 100 participants, 11 were pregnant women. Among them 7 were suffering from thyroid disease.

Thyroid disease during pregnancy	No. of patients	Percentage
Yes	7	63.64%
No	4	36.36%

Table 4.4 show that, maximum 63.64% patients were affected by thyroid disease during pregnancy and 36.36% patients were not affected.

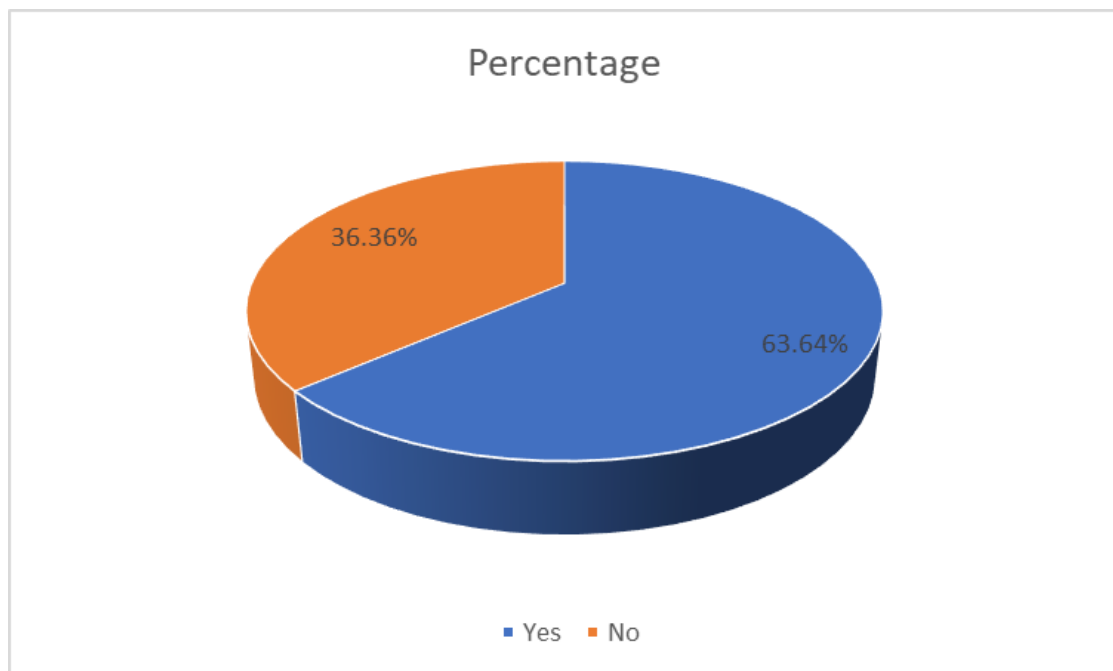


Chart 7: Percentage of thyroid disease patients during pregnancy.

Table 4.8: Type of medication:

I observed from my survey that, small number of patients are taken oral tablets for thyroid disease and large number of patients are not used any type of medication.

Type of medication	No. of patients	Percentage
Oral tablets	12	27.9%
Any supplements	2	4.65%
Others	3	6.97%
None of them	26	60.46%

Data in table 4.8 shows type of medication for thyroid disease. Here, oral tablets were 27.9%, any supplements were 4.65%, others 6.97% and 60.46% patients were not used any type of medication.

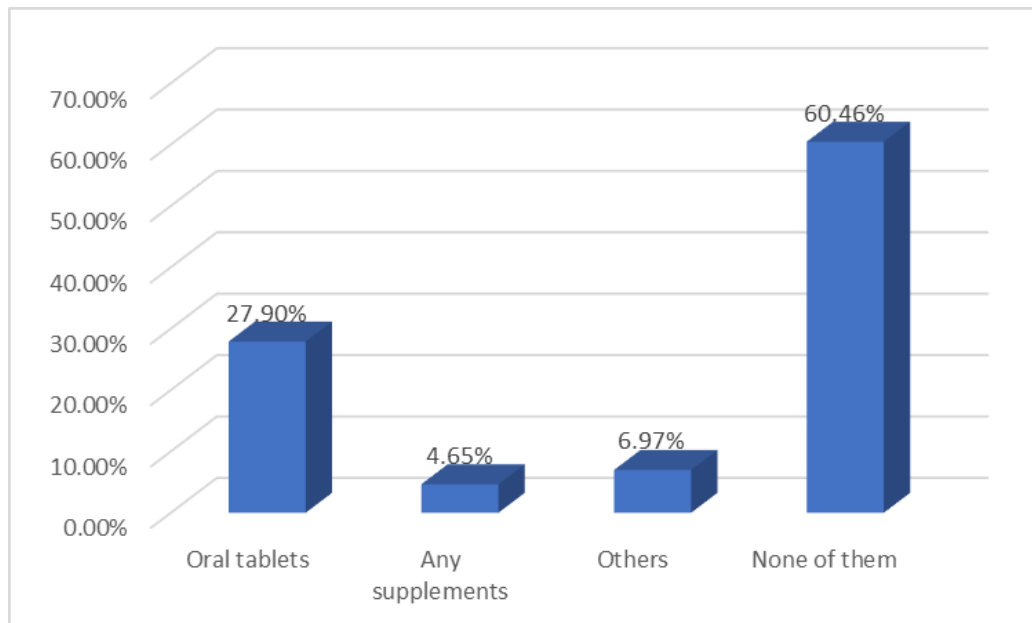


Chart 8: Percentage of type of medication.

Table 4.9: Knowledge about some foods/fruits.

I identified from my survey that, patients don't have so much knowledge about foods/fruits that helps to keep thyroid hormone level normal.

Ans	No. of patients	Percentage
Yes	11	25.58%
No	32	74.42%

Table 4.9 show that, 25.58% patients have knowledge about foods/fruits that helps to keep thyroid hormone level normal but 74.42% patients don't have knowledge.

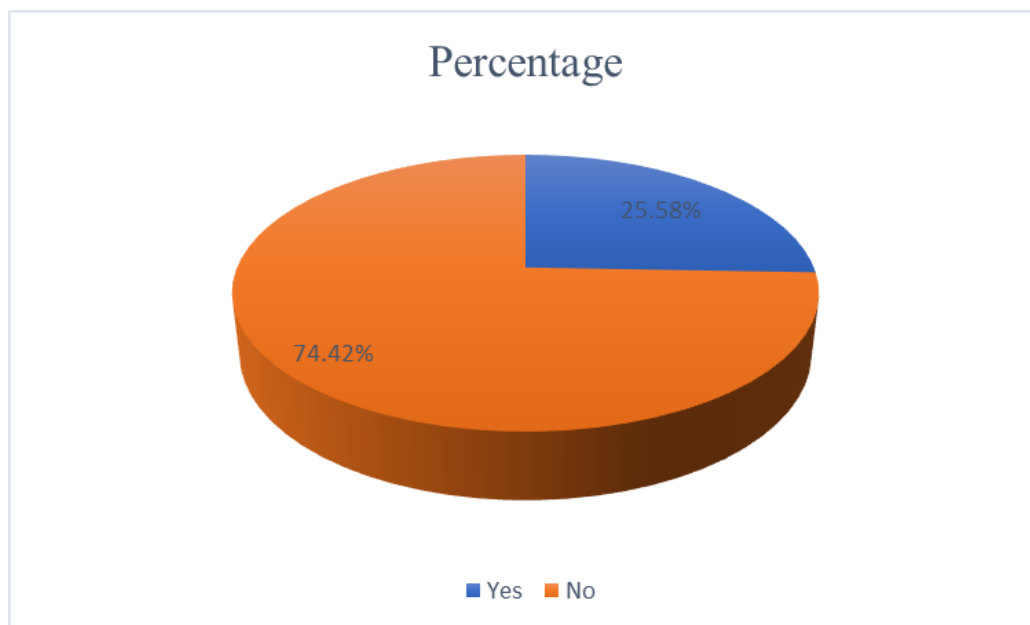


Chart 9: Percentage of knowledge about foods/fruits.

Table 4.10: Importance of iodine:

Iodine is necessary for thyroid cells to produce thyroid hormones. I identified from my survey that, some patients have knowledge about the importance of iodine for the production of thyroid hormones.

Knowledge about iodine	No. of patients	Percentage
Yes	17	39.53%
No	26	60.46%

Data in table 4.6 show that, approximately 39.53% patients have knowledge about the importance of iodine and 60.46% patients haven't knowledge.

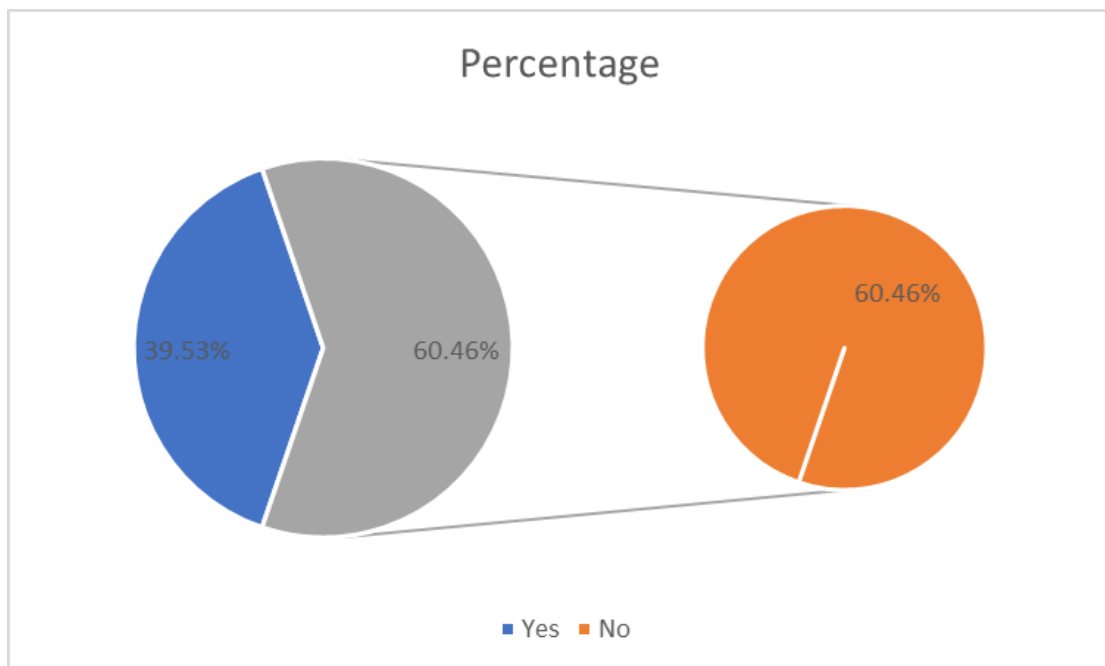


Chart 10: Percentage of knowledge about the importance of iodine.

CHAPTER-5

CONCLUSION

5. Conclusion:

This study aims to determine the level of awareness among the Tangail population so that it is possible to use the results to develop ways of improving awareness. According to my survey, I found that most of the people don't have so much knowledge and awareness of thyroid disease. So this study suggested that, health policy makers should set up more efficient health education sessions to improve public awareness of thyroid disease and the importance of treating it as prescribed.

CHAPTER-6

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