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Awareness of Role of Physiotherapy in Women with Hypothyroidism

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Abstract

Background: Hypothyroidism is a common condition among women that interferes with the quality of life due to its various symptoms, which include fatigue, joint and muscle pain, weight gain, and a slowed heart rate. When it comes to treating the symptoms of hypothyroidism, physiotherapy plays a crucial role. The medications for hypothyroidism will work on hormonal imbalance, but Physiotherapy focuses on the management of symptoms such as cramping and weakening in the muscles, shortness of breath, weight gain, numbness and tingling sensation in hands and fingers, and puffy faces seen in hypothyroidism. By focusing on these symptoms, physiotherapy can relieve various symptoms raised due to hypothyroidism and promote a happier, healthier lifestyle. **Aim:** This study aims to study the awareness of role of Physiotherapy in women with hypothyroidism. **Objectives:** The objective is to check the awareness level of physiotherapy among women diagnosed with hypothyroidism. **Materials and Method:** This was an observational study, and 82 participants were included in it. The survey was created using a variety of criteria to determine the overall understanding level. The self-administered questionnaire was prepared and circulated offline to women diagnosed with hypothyroidism depending on inclusion and exclusion criteria. The data was then analysed. **Results:** The statistical study revealed that women with hypothyroidism are less aware of the significance of Physiotherapy. **Conclusion:** There is a direct need to take measures to raise awareness of the need for physiotherapy in patients diagnosed with hypothyroidism for the management of complications and symptoms.

Keywords: Awareness, Hypothyroidism, Physiotherapy, Quality of Life

1. Introduction

The human body's most significant messenger system, the endocrine system, as the body needs communication between its many organs and parts to maintain homeostasis, or a steady internal environment, for effective functioning. In general, the nervous system enables quick information transfer between various bodily parts. On the other hand, Hormonal communication is more appropriate in situations where more extensive and continuous regulatory actions are needed, which depends on the synthesis, release, and circulation of hormones from different glands. Thus, the two communication systems are so complementary to one another[1]. Endocrine glands, such as the pituitary, adrenal, gonad, thyroid, parathyroid, and pancreatic glands, are responsible for producing chemicals known as hormones. The word "endocrine" suggests that the glands' products are sent into the bloodstream in reaction to stimuli. The hormone's interaction with its receptor initiates a cascade of molecular reactions that ultimately modify the target cell's function or activity[1].

The hypothalamus is a relatively small region of the brain that regulates a wide range of physiological processes, such as blood pressure and heart rate, body temperature regulation, the sleep-wake cycle, eating and

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drinking, sexual activities, and emotional states. The key linking factor between the endocrine and neurological systems is the hypothalamus[1]. The hypothalamus is where thyroid hormone regulation begins. Thyrotropin-Releasing Hormone (TRH) is released from the hypothalamus into the anterior pituitary gland through the hypothalamic-hypophyseal portal system. Thyroid-Stimulating Hormone (TSH) is released by the anterior pituitary's thyrotropin cells when TRH stimulates them. Nearly every organ system in the body is impacted by thyroid hormones, including the heart, brain, autonomic nervous system, bone, gastrointestinal tract, and metabolism[2]. The first endocrine organ to emerge during fetal development is the thyroid gland and is considered to be a vital endocrine gland. The thyroid gland is a butterfly-shaped, highly vascularized organ with two lobes joined by a narrow band known as an isthmus. Under the platysma, sternothyroid, omohyoid, sternocleidomastoid, and sternohyoid muscles, it is situated in the inferior and anterior neck. It runs from the oblique line of thyroid cartilage to the fifth or sixth tracheal ring and presses against the C5 and T1 vertebrae. Adults' thyroids typically measure 5 cm in height, 5 cm in width, and weigh 20-30 g, with women's thyroids being slightly heavier[3].

The first documented endocrine deficiency disorder, hypothyroidism, was originally described in 1850 and occurs more often in older adults. It mostly affects women[3]. About 90% of the inactive thyroid hormone, or thyroxine (T4), and 10% of the active thyroid hormone, or triiodothyronine (T3), are produced by the thyroid. Hypothyroidism is a condition when the body produces insufficient amounts of thyroid hormone[4]. In humans, the hypothalamic-pituitary-thyroid (HPA) axis is a sophisticated hormone regulating system. The thyroid gland releases T4 and T3 in response to TSH[5]. So, when the T4 and T3 hormone level decreases, TSH is released by the pituitary gland which causes an increase in TSH, which is termed Hypothyroidism, also called as under-active thyroid[6]. The thyroid gland is a crucial hormone gland and plays a vital role in controlling the heart, growth and development of human body, muscle functioning, digestive function and bone maintenance[2]. Decrease in the hormone thyroid can disturb heart rate, body temperature and metabolism in all aspects.

Common causes of hypothyroidism: (i) Central (hypothalamic or pituitary)-medications, pituitary disorder. (ii) Iatrogenic - Radiation therapy, which is taken for head and neck cancers, thyroid surgery. (iii) Primary gland failure - Autoimmune disease such as hashimoto's thyroiditis, congenital abnormalities and insufficient intake of iodine (iv) Transient - postpartum thyroiditis, pregnancy[6]. The spectrum of clinical findings (signs) associated with hypothyroidism covers from no symptoms to life-threatening. Which includes Diastolic hypertension, Edema, Hypothermia, Bradycardia, Goiter, Pleural effusion[6]. The following are symptoms of hypothyroidism: Early symptoms- Weight gain, Bradycardia, Fatigue, Muscle cramps, Joint pain, Depression, decreased muscle tone, Female infertility, Increase in serum cholesterol. Late symptoms- Goiter, Abnormal menstrual cycles, Dry puffy skin mostly on face. Uncommon symptom- Breathlessness, Puffy face and hands and feet, Sluggish reflexes[7]. Diagnosis: An elevated TSH level indicates hypothyroidism. Serum TSH test is the laboratory test used to evaluate thyroid function. A simple blood test is done to diagnose hypothyroidism. Normal value of TSH lies between 0.45-4.12 mIU/mL[7]. TSH is the first-line test used to screen for hypothyroidism since its fluctuations happen before those in T3/T4. But since TSH is more dependable than plasma T3/T4 levels, which might vary, it is always the best initial test[8].

Untreated hypothyroidism can lead to several health problems. The following is a list of possible problems that might occur: Cardiac diseases, Heart failure, Rise of cardiomyopathy, Increased level of LDL, Myxodema coma, Infertility, Depression, Mental retardation[7]. Thus, it is crucial to use a number of exercises and an effective physiotherapy program to relieve the symptoms and prevent future complications. Exercise boosts thyroid hormone secretion and raises tissue sensitivity to thyroid hormones, which both increase energy levels. When it comes to hypothyroidism, 45 minutes of daily exercise are useful[7]. Exercise can also improve thyroid function. Though it can be challenging to muster the motivation to work out when feeling exhausted, treating hypothyroidism needs exercise in particular[9]. Hypothyroidism weakens the skeletal stabilizers, which can cause pain in neck, shoulder, elbow, back, knee, ankle and hip leading to poor posture. Thus, physiotherapy will help in proper posture training and core stability exercise to reduce pain through various manual therapy and increase mobility.

Physiotherapy will aid in managing the symptoms of hypothyroidism, like joint pain, muscle cramps, muscle weakness, fatigue, and breathlessness. For individuals with hypothyroidism, creating a routine of exercise can be beneficial in a number of ways. Firstly, it helps to rebuild

activity tolerance and energy levels by concentrating on low-impact exercises like cycling or walking. For patients who are extremely constipated due to the condition, increasing their exercise tolerance can also be quite beneficial. It helps to manage symptoms, improve physical function and enhance overall quality of life.

2. Materials and Method

It was an observational study. The survey was completed offline over the span of a month using a self-administered questionnaire. Women of age group 30 to 55 diagnosed with hypothyroidism residing from Satara district participated in this study. Prior written permission was acquired. The study has received ethical approval. 82 was taken as sample size for this study using convenience sampling.

2.1 Inclusion and Exclusion Criteria

Women in the age range of 30 to 55 who had been diagnosed with hypothyroidism were included in the study, whereas the excluded population was women who were not willing to participate in this study.

3. Result

An observational study was carried out in Satara district aimed to study the awareness of role of physiotherapy in women with hypothyroidism, the participants were women between 30-55 years. As hypothyroidism is most seen in females. In this study 82 women were involved and awareness about role of physiotherapy in women diagnosed with hypothyroidism was checked. The survey study helped to understand the current existing awareness of Physiotherapy for hypothyroid female patients.

The patients were given questionnaire and ask out to fill it accordingly to their level of knowledge.

Table 1 above table depicts symptoms of hypothyroidism experienced by the subjects in response to the following questions.

Figure 1 depicts the pie chart demonstrates that only 6.70% women have started physiotherapy treatment for hypothyroidism. Rest 69.50% women takes allopathy treatment, 17.10% women takes ayurvedic treatment and 6.70% women takes homeopathy treatment.

Table 1. Response regarding symptoms of hypothyroidism

Questions	Yes	No
1) Have you gained unexplainable weight since diagnosis of hypothyroidism	84.1%	15.9%
2) Do you experience muscle weakness while doing you daily activities?	87.8%	12.2%
3) Do you get tired more quickly on walking than usual?	87.8%	12.2%
4) Do you feel any difficulty in breathing while performing your daily routine?	84.1%	15.9%
5) Do you experience swelling in your hands and feet with puffiness in your face?	65.9%	34.1%
6) Are you aware that all the abovementioned symptoms occur due to hypothyroidism?	80.5%	19.5%

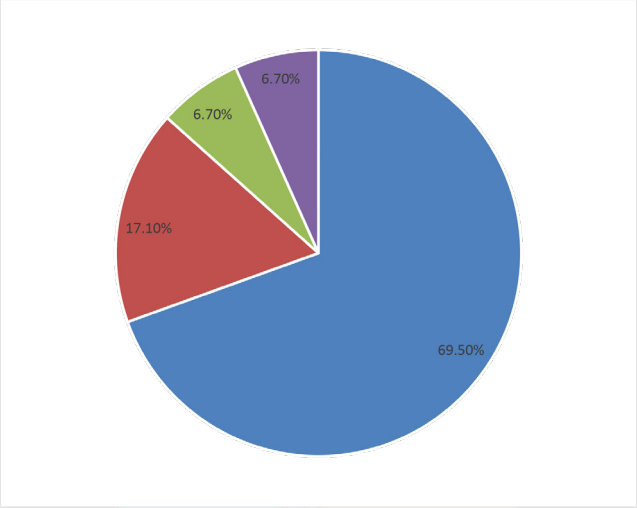

Figure 1. Types of treatment for hypothyroidism.

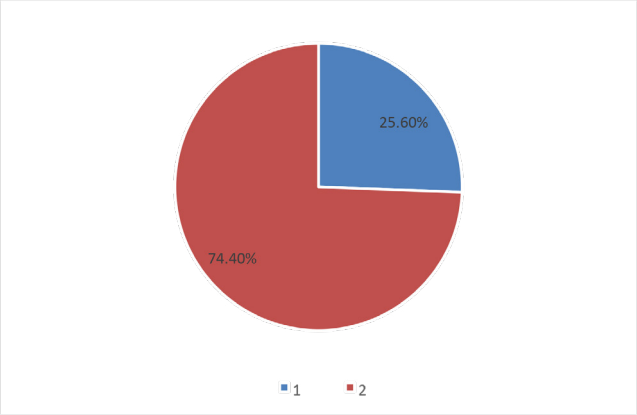

Figure 2. Advice on physical activity.

Figure 2 depicts the pie chart illustrates that 74.4% of women have been advised to begin a physical activity regimen to manage the symptoms of hypothyroidism.

Table 2 depicts the above table displays the questions used to determine the level of understanding on physiotherapy's role in women with hypothyroidism.

Table 2. Awareness of role of physiotherapy in women with hypothyroidism

Questions	Yes	No
Are you aware that physiotherapy can prevent the complications raised due to hypothyroidism?	15.9%	84.1%
Do you know Physiotherapy can help in managing symptoms of hypothyroidism?	17.1%	82.9%
Do you know physiotherapy can help in improving muscle strength, mobility and energy levels?	19.8%	80.2%
Do you know physiotherapy can help in reducing swelling over the hands, legs and face by using various techniques?	17.3%	82.7%
Do you know physiotherapy can relieve musculoskeletal pain associated with hypothyroidism through manual therapy?	18.3%	81.7%
Are you aware that physiotherapy can improve your overall quality of life and enhance recovery?	23.2%	76.8%

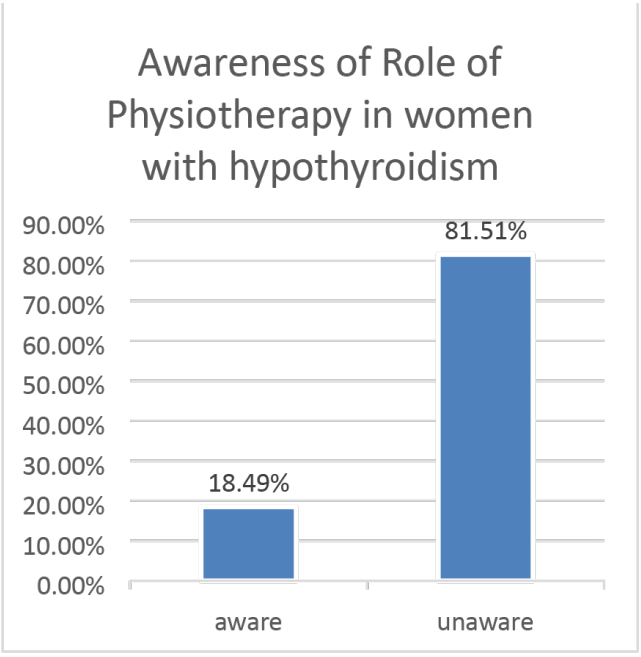

Figure 3. Awareness of role of physiotherapy in women with hypothyroidism.

In Figure 3 the graph displays the level of understanding on physiotherapy's role in women with hypothyroidism.

4. Discussion

The survey study helped to study the awareness of physiotherapy among women with hypothyroidism. The data was analysed accordingly, and the results were: It was found that the women were unaware about the Physiotherapy's role in managing the symptoms of Hypothyroidism.Awareness about Physiotherapy in hypothyroidism indicates 18.49% women are aware about role of physiotherapy in hypothyroidism.

Women mostly depend on allopathy treatment whereas physical exercise is always ignored. But physical fitness is very important for women to prevent further complications raised due to hypothyroidism like hypertension, goiter, myxedema, worsening of menopause symptoms.

Hypothyroidism can lead to various complications, so it is very necessary to take proper treatment to prevent the complications. Physical exercise is among the non-pharmacological aids to prevent complications. Exercise raises energy levels, enhances tissue sensitivity to thyroid hormones, and stimulates the release of thyroid hormones. For those with hypothyroidism, 45 minutes of daily exercise is particularly useful. While there is no cure, there are pharmacological and nonpharmacological ways to manage it. Exercise is crucial for the management and control of this condition. Given by M. Abid, Kapil Kumar Sharma, Syed Salman Ali, Phool Chandra, Anurag Verma, Kamal Kishore, and Najam Ali Khan in 2016 in Complication and Management of Hypothyroidism: A Review[7].

A study done by Akash Bansal, Amit Kaushik, C. M. Singh, Vivek Sharma, Harminder Singh in 2015 named the effect of regular physical exercise on the thyroid function of treated hypothyroid patients: An interventional study at a tertiary care center in Bastar region of India found that Regular exercise can increase thyroid function after being euthyroid on hormone replacement treatment, which will benefit the patient's physical and mental health and allow the dosage of thyroxine replacement therapy to be reduced concurrently. Therefore, frequent exercise is recommended for all young to middle-aged hypothyroid patients to enhance their thyroid condition. Thus, as allopathy is necessary to balance thyroid hormone,

physical therapy is also equally important to maintain overall quality of life. Physiotherapy has a significant impact in maintaining mobility, strength, reducing fatigue by increasing energy levels, so Physiotherapy should be a part of management in hypothyroidism along with proper pharmacological aids[9].

A study by Mohammed J. S. AL Aqeeli Hakima Shaker Hassan in 2022 named Impact of an Instructional Program on Hypothyroidism Patients' Knowledge Toward Physical Exercise and Activity Daily Livings found that there is low awareness of the benefits of physical activity and Activities of Daily Living (ADLs) for patients with hypothyroidism[10].

There is less awareness about physiotherapy's role in hypothyroidism.so certain steps should be taken to raise awareness. These steps include explaining to people the basics of physiotherapy treatment for hypothyroidism, therapist evaluation and assessment, the science and evidence behind each treatment program, and how it helps to prevent complications raised due to hypothyroidism. By putting such measures into place, people's knowledge of physiotherapy can be greatly enhanced, which will improve referrals to physiotherapists.

5. Conclusion

There is a poor level of awareness, as only 18.49% of women are aware, and the rest, 81.51%, are unaware about Physiotherapy for women diagnosed with hypothyroidism. Hypothyroidism is controlled with a combination of pharmacological and non-pharmacological treatments. Hypothyroidism is not a disease but rather a syndrome that can cause many illnesses that cause life-threatening conditions. So, there is an apparent need to increase awareness and encourage the use of physiotherapy programs to enhance the quality of life in hypothyroid patients.

6. Abrevations

TSH - Thyroid Stimulating Hormone

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