

Research Article

The Role of Physiotherapy in Enhancing Quality of Life for Women with Hypothyroidism

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A B S T R A C T

Background: Hypothyroidism is a prevalent condition in women that significantly impacts quality of life through a range of symptoms, including fatigue, joint and muscle pain, weight gain, and a slowed heart rate. While medications for hypothyroidism primarily address hormonal imbalance, physiotherapy plays a critical role in managing associated symptoms such as muscle cramps, weakness, shortness of breath, weight gain, numbness and tingling in the hands and fingers, and facial puffiness. By targeting these symptoms, physiotherapy effectively alleviates the effects of hypothyroidism and supports a more fulfilling and healthier life.

Objectives: The goal is to assess how familiar women with hypothyroidism are with the role of physiotherapy in their condition.

Materials and Method: This study was observational and involved 200 participants. A survey was designed based on multiple criteria to assess the overall comprehension level. The self-administered questionnaire was distributed via social media platforms to women diagnosed with hypothyroidism who met specific inclusion and exclusion criteria. Data collection and analysis were conducted using a Google Form and spreadsheet, respectively.

Results: The statistical analysis indicated that women diagnosed with hypothyroidism have a low level of awareness regarding the importance of physiotherapy.

Conclusion: There is an urgent necessity to implement measures aimed at increasing awareness about the role of physiotherapy in managing complications and symptoms among patients diagnosed with hypothyroidism.

Keywords: Awareness, Hypothyroidism, Physiotherapy, Quality of life

Introduction

The endocrine system, the body's primary messenger system, facilitates communication among its organs and parts to maintain homeostasis, ensuring effective functioning. While the nervous system enables rapid information transfer between body parts, hormonal communication is essential for broader and sustained regulatory actions. This involves the synthesis, release, and circulation of hormones from various glands, making these two communication systems highly complementary to each other.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 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 hormone, including the heart, brain, autonomic nervous system, bone, gastrointestinal tract, and metabolism.² The thyroid gland, the first endocrine organ to develop during fetal growth, is crucial in the endocrine system.³ Shaped like a butterfly, this highly vascularized gland consists of two lobes connected by a narrow isthmus. Positioned in the inferior and anterior neck beneath muscles like the platysma, sternothyroid, omohyoid, sternocleidomastoid, and sternohyoid, it extends from the oblique line of thyroid cartilage to the fifth or sixth tracheal ring, pressing against the C5 and T1 vertebrae.⁴ In adults, the thyroid typically measures 5 cm in height, 5 cm in width, and weighs between 20–30 g, with women's thyroids being slightly heavier.⁵

Hypothyroidism, the first documented endocrine deficiency disorder dating back to 1850, is more prevalent among older adults, particularly affecting women. The thyroid gland produces about 90% of the inactive thyroid hormone thyroxine (T4) and 10% of the active thyroid hormone triiodothyronine (T3). Hypothyroidism occurs when the

body fails to produce sufficient thyroid hormone.

In humans, the hypothalamic-pituitary-thyroid (HPT) axis regulates hormone levels intricately. The thyroid gland secretes T4 and T3 in response to thyroid-stimulating hormone (TSH) from the pituitary gland. When T4 and T3 levels decrease, the pituitary gland releases more TSH, leading to hypothyroidism, also known as underactive thyroid.^{3,5}

The thyroid gland is essential for hormone regulation and plays a crucial role in controlling heart function, growth and development, muscle functioning, digestive processes, and bone maintenance.² A decrease in thyroid hormone levels can disrupt heart rate, body temperature regulation, and overall metabolism.

Common causes of hypothyroidism include: (i) Central causes such as medications affecting the hypothalamus or pituitary gland, and pituitary disorders. (ii) Iatrogenic causes like radiation therapy for head and neck cancers, and thyroid surgery. (iii) Primary gland failure due to autoimmune diseases like Hashimoto's thyroiditis, congenital abnormalities, and inadequate intake of iodine. (iv) Transient causes such as postpartum thyroiditis and pregnancy.⁶

The clinical manifestations (signs) associated with hypothyroidism range from no symptoms to potentially life-threatening conditions. These can include diastolic hypertension, edema (fluid retention), hypothermia, bradycardia (slow heart rate), goiter (enlarged thyroid gland), and pleural effusion (fluid around the lungs).⁶

Diagnosis

An elevated TSH (thyroid-stimulating hormone) level indicates hypothyroidism. The serum TSH test is the primary laboratory test used to assess thyroid function. Diagnosis of hypothyroidism typically involves a simple blood test. The normal range for TSH is between 0.45–4.12 mIU/mL.⁷ TSH is preferred as the initial screening test for hypothyroidism because its levels fluctuate earlier than those of T3/T4 hormones. Moreover, TSH is more reliable than plasma T3/T4 levels, which can vary, making it the recommended first-line test.⁷

Untreated hypothyroidism can lead to several health complications. Potential problems include cardiac diseases, heart failure, cardiomyopathy, elevated LDL cholesterol levels, myxedema coma, infertility, depression, and mental retardation.⁷ Therefore, implementing appropriate exercises and an effective physiotherapy program is crucial for managing symptoms and preventing future complications.⁸

Exercise plays a significant role in managing hypothyroidism by increasing thyroid hormone secretion and enhancing

tissue sensitivity to these hormones, thereby boosting energy levels. Engaging in 45 minutes of daily exercise is beneficial for individuals with hypothyroidism⁷. Exercise also contributes to improving overall thyroid function. Despite the challenge of finding motivation to exercise while experiencing fatigue, physical activity is particularly important in the management of hypothyroidism.⁹

Hypothyroidism can weaken skeletal stabilizers, leading to pain in various areas such as the neck, shoulders, elbows, back, knees, ankles, and hips, as well as contributing to poor posture. Physiotherapy can assist in addressing these issues through proper posture training, core stability exercises, and various manual therapies aimed at reducing pain and improving mobility.

Physiotherapy plays a crucial role in managing symptoms commonly associated with hypothyroidism, including joint pain, muscle cramps, weakness, fatigue, and breathlessness. Establishing a regular exercise routine can benefit individuals with hypothyroidism in multiple ways. It helps rebuild activity tolerance and energy levels, focusing on low-impact exercises like cycling or walking. Additionally, increasing exercise tolerance can be particularly beneficial for individuals experiencing constipation due to the condition, contributing to symptom management, improved physical function, and enhanced overall quality of life.

Materials and Method

The study was observational in nature. Participants completed a self-administered questionnaire online over the course of one month. The survey was distributed via social media platforms like WhatsApp, using a URL link to a Google Form.

Study Design

Methodology

The study employed an observational design using a survey method with simple random sampling over a duration of 6 months, involving a sample size of 200 participants.

Selection Criteria

1. Women diagnosed with Hypothyroidism
2. Women of age group 30 to 55

Result

An observational study was conducted to assess the awareness of the role of physiotherapy in women aged 30-55 diagnosed with hypothyroidism, given its higher prevalence in females. The study involved 200 participants who were surveyed to gauge their awareness. Participants completed a questionnaire distributed via Google Forms through social media platforms. Data collected from the survey responses were processed using a Google spreadsheet, facilitating the creation of a master graphic

displaying frequency distributions and responses as follows:

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

Questions	Yes	No
If you've experienced weight gain since being diagnosed with hypothyroidism	79.7%	20.1%
Do you notice muscle weakness during your daily activities?	82.3%	17.7%
Do you find yourself getting tired more quickly than usual while walking?	88.7%	11.3%
Do you experience any difficulty in breathing while performing your daily routine?	82.1%	17.9%
Do you experience swelling in your hands and feet, along with puffiness in your face?	62.8%	37.2%
Are you aware that all the symptoms mentioned above are associated with hypothyroidism?	82.6%	17.4%

Table 2. The table presents the questions designed to assess the comprehension of physiotherapy's significance in women diagnosed with hypothyroidism

Questions	Yes	No
Do you know that physiotherapy can help prevent the complications associated with hypothyroidism?	13.9%	86.1%
Are you aware that physiotherapy can assist in managing symptoms of hypothyroidism?	19.2%	80.8%
Are you aware that physiotherapy can aid in enhancing muscle strength, mobility, and energy levels?	17.8%	82.2%
Are you aware that physiotherapy can assist in reducing swelling in the hands, legs, and face through various techniques?	16.9%	83.1%
Are you aware that physiotherapy can alleviate musculoskeletal pain related to hypothyroidism through manual therapy techniques?	19.2%	80.8%
Do you know that physiotherapy can enhance your overall quality of life and promote recovery?	24.8%	75.2%

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 19.2% 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 non-pharmacological 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.

Conclusion

There is a poor level of awareness, as only 19.2% of women are aware, and the rest, 80.8%, 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.

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Conflict of Interest: None

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