

Investigating the Distinctions in Physical Well-being and Life Satisfaction between Women with Hypothyroidism and Healthy Individuals: A Focus on Rehabilitation School Attendees

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Abstract

Introduction: Hypothyroidism, characterized by an underactive thyroid, is a prevalent condition often accompanied by metabolic changes and goiter. Despite successful treatment, previous research suggests that the quality of life for many patients may be reduced. This study aims to investigate the quality of life in women with hypothyroidism, specifically those treated with levothyroxine, by comparing them to a control group. **Materials and Methods:** A case-control study involving 61 women aged 18 to 65 with hypothyroidism treated with levothyroxine was conducted. The World Health Organization Quality of Life-26 questionnaire (WHO/QOL-BREF) was used to assess health-related quality of life (HRQOL). The collected data from the WHO/QOL-BREF questionnaires were compared between the patient group and a healthy control group. Serum T4 and TSH levels were also measured in both groups. **Results:** The average WHO/QOL-BREF score for the patient group was 84.7 ± 10.9 , while the healthy control group scored 88.3 ± 12.1 . Although there was no significant difference in overall HRQOL, significant differences were observed between the two groups in the physical health (13.75 ± 2.54 for patients and 14.9 ± 2.1 for healthy individuals) and psychological health domains (11.84 ± 2.69 for patients and 13.2 ± 2.3 for healthy individuals). No significant differences were found in the social and environmental health domains (social: patients 12.51 ± 3.15 , healthy individuals 12.1 ± 3.4 ; environmental: patients 13.62 ± 1.75 , healthy individuals 13.3 ± 2.2) (P -value=0.74). **Conclusion:** In this study, significant differences were observed only in the physical and psychological health domains of women with treated hypothyroidism, with their average scores being lower than those of healthy individuals. However, no significant differences were found in the social and environmental health domains between the two groups.

Keywords: Hypothyroidism; Quality of Life; WHO/QOL- BREF Questionnaire

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Introduction

In recent years, the assessment of health and implementation of interventions have evolved to incorporate not only mortality rates, disease frequency, and severity but also the quality of life as a vital aspect in understanding an individual's overall well-being. Quality of life serves as an essential indicator in health research, providing insights into emotions, physical activities, social interactions, and the ability to perform daily tasks (1-5). This holistic approach allows healthcare professionals to gain a more comprehensive understanding of a patient's health status and tailor treatments accordingly.

Hypothyroidism, a chronic condition affecting the thyroid gland, is particularly common among women and middle-aged individuals. This disorder results in a range of symptoms that can significantly impact a person's quality of life, including persistent fatigue, weight gain, reduced libido, dry skin, depression, and cognitive difficulties (6). While treatment with levothyroxine, a synthetic thyroid hormone, has been shown to improve the quality of life and alleviate fatigue for many patients (6-11), it should be noted that mental health issues, especially those related to neuropsychiatry, may not be entirely resolved with this treatment.

The term "quality of life" is frequently utilized in medicine and health to evaluate patients, as it encompasses various aspects

of their lives, such as emotional well-being, physical activities, and social functioning. This multifaceted concept plays a crucial role in determining the effectiveness of healthcare interventions and the overall success of treatments.

Numerous studies have employed different questionnaires to assess the quality of life in hypothyroid patients, consistently demonstrating improvements in their quality of life following treatment. One such study compared adults with congenital hypothyroidism who had been managing the condition since childhood to a control group. The results indicated that the quality of life for the individuals with congenital hypothyroidism was lower than that of the control group, with no significant differences observed in any of the questionnaire areas (14).

Given the importance of quality of life in understanding the impact of health conditions and treatments, the primary objective of the current study is to delve deeper into the health-related quality of life (HRQOL) and living conditions of hypothyroid women who have been treated with levothyroxine. By examining these factors, researchers aim to provide valuable insights into the efficacy of this treatment approach and contribute to the ongoing efforts to improve the overall well-being of patients suffering from hypothyroidism.

Materials and Methods

Participants

This study focuses on comparing the health-related quality of life (HRQOL) between 63 hypothyroid female patients receiving thyroid replacement therapy and 71 healthy individuals. The participants were recruited from March 2011 to March 2012 at the Institute of Endocrinology and Metabolism Clinics in Firoozgar Hospital, Iran. After explaining the study to participants, they provided written consent.

To assess HRQOL, researchers utilized the World Health Organization Quality of Life-26 questionnaire (WHO/QOL-BREF) and collected demographic information. Blood samples were taken to measure serum T4 and TSH levels in both groups. Women with pregnancy, diabetes, thyroid cancer, or psychiatric disorders were excluded from the study.

Intervention

The WHOQOL-BREF is a widely-used 26-item questionnaire designed to assess overall quality of life and health, with a focus on four primary domains: physical, psychological, social, and environmental well-being. The questionnaire uses a 5-point Likert scale and consists of 24 items distributed among these domains, with seven items for physical health, six items for psychological health, three items for social relationships, and

eight items for environmental quality of life. The WHOQOL-BREF has been translated into over 40 languages, including Persian, and the Iranian version has demonstrated strong validity and internal consistency (15).

In the mental health domain, the questionnaire covers aspects such as appearance, negative and positive emotions, self-esteem, thinking, learning, memory, concentration, religion, and mental state. The social relationships domain includes questions about personal relationships, social support, and sexual life (16-17). The environmental health domain explores factors like financial resources, physical security, health care, social and physical environment of residence, opportunities for new skills and information, recreational situations, and physical environment factors (like air pollution and noise). Each domain has a score ranging from 4 to 20, where a score of 4 represents the lowest quality of life and 20 represents the highest. The WHOQOL-BREF has been utilized and validated across numerous countries to provide a comprehensive evaluation of quality of life and health from various perspectives (18-26).

Procedure

In the subsequent stage of the analysis, the researchers compared the average quality of life in four domains: physical health, mental health, social health, and environmental health, as well as demographic characteristics between the patient group and the control group. Each domain in the questionnaire consisted of multiple questions, with each question having five answer choices, and a corresponding score of 5 assigned to each choice.

Statistical analysis

In this study, the mean and standard deviation for each domain of the World Health Organization Quality of Life-26 questionnaire (WHO/QOL-BREF) were calculated to evaluate the health-related quality of life (HRQOL) in both groups. Higher scores in these domains indicate a better quality of life. To analyze the data, the researchers employed the Statistical Package for the Social Sciences (SPSS) version 19. They used the t-test for statistical analysis to compare the differences between the two groups. The researchers considered any differences to be statistically significant if the p-value was less than 0.05.

Results

In Table 1, the profiles of participants reveal noticeable differences in BMI and mean TSH and T4 levels between the two groups. The WHO/QOL-BREF average scores for patients were 84.7 ± 10.9 , while those for healthy individuals were 88.3 ± 12.1 ; however, this difference was not statistically significant (P -value=0.74).

Table 1. Mean (SD) of demographic characteristic of patients in control and intervention groups

Variables	Control (N=71)	Patients (N=61)	P-value
Age	10.13 (35.6)	8.29 (45.1)	0.000
BW (kg)	11.4 (66.3)	11.1 (74.3)	0.000
BMI (kg/m)	3.9 (25.3)	4.2 (29.2)	0.000
TSH (mIul/L)	0.9 (2.1)	3.2 (3.6)	0.001
T4 (ug/dl)	1.3 (7.8)	1.3 (8.5)	0.000

Table 2. Mean (SD) of QOL of patients in control and intervention groups

Variable	Control (N=71)	Patients (N=61)	P-value
Physical health area	2.1 (14.9)	2.5 (13.75)	0.006
Mental health area	2.3 (13.2)	2.7 (11.8)	0.02
social domain	3.4 (12.1)	3.1 (12.52)	0.571
Environment area	2.2 (13.3)	1.7 (13.6)	0.357
Total Score	12.1 (88.3)	10.9 (84.7)	0.74

Table 3. Mean (SD) of frequency& Mean score of QOL in patients according to hypothyroid causes

Cause	Physical Health	Mental Health	Social Health	Environment Health	Total number
With surgery	2.588 (13.8)	1.924 (14.2)	22.49 (13.8)	1.414 (14)	5
Without surgery	2.56 (13.75)	2.667 (11.62)	3.195 (12.29)	1.787 (13.59)	56
With Radioactive Iodine treatment	2.53 (14)	4.021 (11.83)	2.58 8 (11.5)	1.211 (13.67)	6
With Radioactive Iodine treatment	2.564 (13.73)	2.566 (11.84)	3.206 (12.62)	1. 810 (13.62)	55
Positive Anti -Tpo	2.532 (13.55)	2.633 (11.51)	3.322 (12.37)	1. 873 (13.67)	51
Negative Anti -Tpo	2.440 (14.80)	2.506 (13.50)	12.044 (13.20)	0.966 (13.40)	10

Significant disparities were observed between patients and healthy individuals in both physical and psychological health domains (patients: 11.84 ± 2.69 , healthy individuals: 13.2 ± 2.3), but no significant differences were found in the social and environment domains (patients: 12.51 ± 3.15 , healthy individuals: 12.1 ± 3.4 ; patients: 13.62 ± 1.75 , healthy individuals: 13.3 ± 2.2). These findings are summarized in Table 2.

The quality of life in patients with hypothyroidism, divided by cause (autoimmune, post-surgery), showed a statistically significant difference only in the mental health field ($P < 0.032$). However, in patients who received radioactive iodine due to Graves' disease, there were no statistically significant differences in any of the four domains. These results are presented in Table 3.

Surgical patients had a higher mean score (14.20 ± 1.924) than non-surgical patients (11.62 ± 2.667), indicating a better quality of life for surgical patients. Additionally, patients with autoimmune hypothyroidism had a lower mean score (11.51 ± 2.633) compared to those with non-autoimmune hypothyroidism (13.50 ± 2.506), suggesting a poorer quality of life for the former group.

Discussion

The significance of incorporating quality of life aspects in evaluating thyroid patients is increasingly acknowledged.

Assessing the impact of various treatment modalities on patients' quality of life is crucial since many thyroid diseases can be treated. The World Health Organization defines quality of life as individuals' perception of their life situation, considering culture, values, goals, expectations, and priorities. It is highly individual and subjective (27-29).

In our study, we found that the quality of life of patients and healthy individuals only significantly differed in terms of physical health and mental health. Patients had a lower quality of life than healthy controls. However, there was no significant difference in quality of life between the two groups overall. Furthermore, the quality of life in hypothyroid subjects due to Graves' disease was only significant in the mental health domain (20).

Surgical patients had a higher mean quality of life score (14.20) compared to patients without surgical treatment (11.62), indicating a better quality of life for the former group. Studies by Samuels *et al.* and Ott *et al.* have also explored the relationship between hypothyroidism and quality of life, with varying results (30-31).

The findings from our study highlight the importance of assessing quality of life in patients with autoimmune hypothyroidism, as they appear to experience a lower quality of life compared to those with non-autoimmune hypothyroidism. This distinction is crucial for healthcare professionals, as

understanding the impact of different types of hypothyroidism on patients' well-being can help tailor treatment plans and improve overall care.

In the context of debates surrounding the relationship between hypothyroidism and health-related quality of life, it is essential to recognize that various factors may contribute to these differences. These factors can include the underlying cause of hypothyroidism, the severity of the condition, and individual patients' responses to treatment. By considering quality of life in clinical practice, healthcare providers can gain valuable insights into their patients' experiences and make more informed decisions about treatment strategies.

Moreover, evaluating quality of life can help identify areas where patients may require additional support or resources. For instance, if patients with autoimmune hypothyroidism report significantly lower mental health scores, healthcare professionals can recommend psychological support or counseling to address these concerns. By addressing these issues proactively, healthcare providers can enhance the overall effectiveness of treatments and contribute to improved patient outcomes. Further research is needed to better understand the relationship between hypothyroidism and public health and environmental factors, as well as their influence on patients' overall quality of life. By gaining a more comprehensive understanding of these connections, healthcare professionals can work towards optimizing care and support for patients with hypothyroidism, addressing not only their specific condition but also the broader context in which they live and interact with their environment.

Conclusion

The study revealed that patients with hypothyroidism had a lower quality of life in physical health and mental health domains compared to healthy individuals, suggesting its negative impact on their physical functioning and emotional well-being. In the public health and environment domain, there was no significant difference between the two groups, implying that factors like access to healthcare services and community support might not be significantly influenced by hypothyroidism. Although the study doesn't imply hypothyroidism has no effect on public health and environmental aspects, the impact seems minor or comparable to healthy individuals. Further research is essential to understand the relationship better and improve care for hypothyroidism patients.

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Ethical considerations

This study was conducted following all relevant ethical guidelines and regulations to ensure the protection of participants' rights and confidentiality.

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Conflict of interest

None.

Authors' contributions

Fatemeh Golgiri: Study design and Interpretation of result, Parvin Dibajnia: Study design and preparation of the manuscript, Narges Kangani: data collection and preparation of the manuscript, Zahra Emami: data analysis

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