

Effect Of Aerobic Exercises Along With Music Therapy On The Fatigue And Quality Of Life In Female With Thyroidectomy Following Thyroid Cancer: A Research Protocol

Akshaya V. Saklecha (✉ akshayasaklecha32@gmail.com)

Ravi Nair Physiotherapy College, Datta Meghe Institute of Medical Sciences

Shubhangi Patil

Ravi Nair Physiotherapy College, DMIMS (DU), Sawangi (Meghe)

Article

Keywords: Aerobic exercises, Music Therapy, Thyroid cancer, Thyroidectomy, Fatigue, Fatigue assessment scale, Rand SF-36 Questionnaire

Posted Date: April 26th, 2022

DOI: <https://doi.org/10.21203/rs.3.rs-1560550/v1>

License: © ⓘ This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

Abstract

Background-

Thyroid cancer, which manifests as a solid tumour cancer of the thyroid gland, is the most common endocrine cancer in women and the sixth most common cancer overall. Its prevalence has been rapidly rising in India, particularly among the younger population, with a rise in fatigue caused by cancer and poor quality of life in females following thyroidectomy.

Aim-

This experimental study protocol has been designed to evaluate the effect of Aerobic exercises along with Music Therapy on the fatigue and quality of life in female with thyroidectomy following thyroid cancer.

Methods-

The study's participants (n = 30) will be females who underwent thyroidectomy and meet the inclusion criteria. The participants will be enrolled in the study, ensuring that the six-week session is effectively completed. Aerobic exercises are combined with music therapy as the intervention. Fatigue and quality of life will be evaluated pre and post-treatment by using the Fatigue assessment scale and Rand SF-36 Questionnaire.

Conclusion-

This is a unique study, since a similar study has not yet been carried out. This study evaluates the effect of Aerobic exercises combined with Music Therapy by determining the fatigue caused by cancer and quality of life in females with post thyroidectomy following thyroid cancer.

Introduction

Thyroid cancer is a type of solid tumour malignancy that appears as a nodule or mass in the thyroid gland (Cabanillas et al., 2016), also being a vital endocrine gland found near the base of the throat, anterior to the trachea¹. This is the most prevalent endocrine malignancy in women and the fifth leading cancer overall². Its incidence has rapidly increased in India, particularly among the younger population³. Thyroid cancer affects three times as many females as it does males, and it is more typically detected at a younger age. The thyroid gland is in charge of hormones that regulate the heart rate, blood pressure, weight, and body temperature. Approximately 70 percent of the total cases reported are diagnosed in persons under the age of 55, with only 2% diagnosed in children and teenagers. Thyroid cancer is

classified into numerous forms, the most prevalent of which being papillary thyroid carcinoma⁴. Thyroid cancer patient's treatment options include medical management, physiotherapy management and the surgical management. The surgical excision of the entire thyroid gland; this surgical procedure is known as Thyroidectomy, which was the preferred treatment for thyroid cancer⁵. Females after thyroidectomy are more likely to develop fatigue which affects the quality of life.

Cancer-related fatigue (CRF) is the most common symptom experienced by cancer patients, and it may persist for years after treatment⁵. Fatigue often results in poor quality of life (QOL). Although previous studies found exercise to be an effective intervention for CRF, managing this particular stressor continues to be a challenge⁶. Surprisingly, fatigue is prevalent in long-term survivors who no longer suffer from cancer itself. Fatigue has a serious impact on cancer patients' quality of life. Exercise is becoming more popular in the management of cancer-related fatigue and quality of life. Aerobic exercises are one therapeutic option for improving quality of life. Exercises have always had the biggest effect on hormones, aerobic endurance, and overall health. The benefits of an exercise regimen have long been recognised, including the prevention of secondary conditions, lower morbidity and mortality rates, and psychosocial elements. It has been shown that aerobic exercise is more effective in terms of boosting strength, quality of life, and symptom reduction⁷.

Music therapy was effective in providing relaxation and relieve the poor quality of life in cancer patients⁸. Music therapy can also interact with the release of morphine substance which alleviates the patient's anxiety and depression and provide a sedative and hypnotic effect⁹. Other research has shown that aerobic exercise can improve neuroendocrine function and increase serotonin and endorphin levels¹⁰, which can relieve fatigue, improve body function, and improve quality of life¹¹.

Thus, combining Aerobic exercise along with music therapy are one method for reducing fatigue and improving overall quality of life. This study aims to determine the effect of Aerobic exercises combined with Music Therapy on the fatigue and quality of life in female with thyroidectomy following thyroid cancer. Hypothesis of the study was that female with post thyroidectomy following thyroid cancer will have significant effect of Aerobic exercises combined with Music Therapy on the fatigue and quality of life in female.

Methods

Study design and setting-

This is an experimental study evaluating the effect of Aerobic exercises combined with Music Therapy on the fatigue and quality of life in female with thyroidectomy following thyroid cancer. The participants would be recruited from Acharya Vinoba Bhave Rural Hospital in Sawangi Meghe, Wardha, Maharashtra, after receiving approval from the Institutional Ethics Committee of Datta Meghe Institute of Medical Sciences, which is considered a university. The participants were informed of the study's objectives, and they were required to sign a consent letter.

STUDY POPULATION

Inclusion criteria: -

1. Female gender
2. Age range: 20 to 55 years
3. Those who are fatigue and poor quality of life after thyroidectomy following thyroid cancer.

Exclusion criteria: -

1. Those who have an unstable cardiovascular condition, as determined by the physician
2. Those who are currently enrolled in another clinical trial
3. Those who have chronic, progressive medical condition
4. Those who have an ongoing pregnancy

Before randomization subjects will be assessed using the questionnaire which will be self-drafted. Information regarding age, occupation, primary symptoms, additional symptoms, duration of symptom, history of recurrence, history of previous treatment, quality of life will be obtained from an interview which will contain a series of standard questions.

Sample Size Calculation: -

The number of patients participating in the study is determined by SPSS 27. OV software using data of Cochran, W.G. (1977). 30 patients will be enrolled in the study.

Recruitment-

The diagnosed case of thyroid cancer who underwent thyroidectomy in the study was enrolled. After enrolling in the study, participants will participate in a 6-week rehabilitation program. Before allocation, informed patient consent will be obtained once the study's purpose, technique, advantages, and post-intervention effects have been explained.

STUDY PROCEDURE

Thirty women with thyroid cancer who underwent thyroidectomy were included in this study. The study's goal will be described, and participants' informed consent will be obtained. First, we collected demographic information of the patients. For treatment, the patients have to visit six weeks and in one week four days. The participants will be given the questionnaires- Fatigue assessment scale and the Rand SF-36 Questionnaire. Cancer related fatigue will be evaluated by using Fatigue assessment scale and Quality of life will be evaluated by using the Rand SF-36 questionnaire, pre and post-intervention. The therapy goals in women who underwent thyroidectomy includes reducing fatigue, improving general well-being and quality of life. Patients received an exercise programme rehabilitation include sessions, four times a week for the duration of 6 weeks, consisting of 10 minutes of warm up and cool down exercise

and 20 minutes of aerobic exercises combined with music therapy. Each session consists of 40 minutes. The aerobic exercises that was implemented included 20 minutes of walking combined with Music therapy.

OUTCOME MEASURE:

The patients will complete outcome measures such as Fatigue assessment scale and Rand SF-36 Questionnaire.

1. **Fatigue assessment scale**- It is a self-reported 10-item scale for assessing chronic fatigue symptoms. This scale showed good validity and reliability in a number of cancer patients. Total scores can range from 10 to 50, with 10 indicating the least amount of fatigue and 50 indicating the most.
2. **Rand SF-36 Questionnaire** – The RAND-36 (SF-36) is the most extensively used health-related quality-of-life scale in use today. It is a 36-item questionnaire that evaluates eight different aspects of health: physical functioning, role limitations due to physical health problems, role restrictions due to emotional disorders, social functioning, emotional well-being, energy/fatigue, pain, and general health perceptions.

DATA COLLECTION AND STATISTICAL ANALYSIS:

The study's data would be obtained from an excel spreadsheet. The study's findings will be kept in a safe database. In the study setting, the assessment forms, informed consent letter signed by the patients, filled questionnaires, and other information will keep safe. Under the direction of the chief investigators, data will be collected and reported. The accuracy of the analytical documentation will be checked twice. An Excel spreadsheet has been prepared for publication after the study is completed. Data from the trial will be kept in a secure safe with limited access for later analysis by a biostatistician and the lead researcher. To avoid data loss, checklists are utilised. The Chi-square test and the unpaired t-test will be used to analyse statistical data in the data analysis. The SPSS 27. OV latest version will be used to perform statistical analyses. Tests should be performed with a 95 percent confidence interval (p-value 0.037).

Discussion

This study will evaluate the effect of Aerobic exercises combined with Music Therapy by determining the cancer-related fatigue and quality of life by using the Fatigue assessment scale and Rand SF-36 Questionnaire. The aerobic exercises combined with Music therapy can be a viable approach for treating the fatigue and improving the quality of life in females underwent thyroidectomy following thyroid cancer. There was lack of literature on the physiotherapy intervention in thyroid cancer females who underwent thyroidectomy. The study result will significantly provide the effect of Aerobic exercises combined with Music Therapy on the fatigue and quality of life in female with thyroidectomy following thyroid cancer.

Conclusion

The study protocol will be concluding on the fatigue and quality of life in females underwent thyroidectomy following thyroid cancer. Based on the finding of the study, specific recommendations will be made on the use of intervention for reducing fatigue and improving quality of life among the patients.

Declarations

We here by **confirm that all methods were carried out in accordance with relevant guidelines and regulations with Declaration of Helsinki.**

Authors contributions

SP suggested the study's design. AS and SP planned and designed the study. This article's manuscript was written by AS. AS and SP read the final manuscript and gave their approval for publication.

Availability of data and materials

The department of physiotherapy at Datta Meghe Institute of Medical Sciences, deemed to be a university, will provide the essential materials for the research.

Declaration of conflicting interests

The author declares that there has no conflicting interest.

Funding

There will be no direct financing from any public or private entities for this project.

ORCID iD

Akshaya Saklecha- <https://orcid.org/0000-0001-6833-5593>

Shubhangi Patil- <https://orcid.org/0000-0003-3066-0176>

Ethical Approval and consent to participate

The institutional ethical committee will provide ethical approval. The DMIMS, which will fund research and the project's main findings, can be used by the study participants. Following the collection of data and statistical analysis, a completion report will be created, and the cell will be forwarded for publication after being reviewed by institutional research review. An informed consent form will be signed by each participant.

References

1. Nguyen, Q. T. *et al.* Diagnosis and Treatment of Patients with Thyroid Cancer. *Am Health Drug Benefits* **8**, 30–40 (2015).
2. Laha, D., Nilubol, N. & Boufraquech, M. New Therapies for Advanced Thyroid Cancer. *Front Endocrinol (Lausanne)* **11**, 82 (2020).
3. Lim, H., Devesa, S. S., Sosa, J. A., Check, D. & Kitahara, C. M. Trends in Thyroid Cancer Incidence and Mortality in the United States, 1974–2013. *JAMA* **317**, 1338–1348 (2017).
4. Abdullah, M. I. *et al.* Papillary Thyroid Cancer: Genetic Alterations and Molecular Biomarker Investigations. *Int J Med Sci* **16**, 450–460 (2019).
5. Staci Oertle, R. N. Evaluating the Effects of a Physician-Referred Exercise Program on Cancer-Related Fatigue and Quality of Life Among Early Cancer Survivors. (2016).
6. Maki, Y., Horiuchi, K. & Okamoto, T. Fatigue and quality of life among thyroid cancer survivors without persistent or recurrent disease. *Endocrine Connections* **11**, (2022).
7. Thomson, R. L., Buckley, J. D. & Brinkworth, G. D. Exercise for the treatment and management of overweight women with polycystic ovary syndrome: a review of the literature. *Obesity Reviews* **12**, e202–e210 (2011).
8. Cervellin, G. & Lippi, G. From music-beat to heart-beat: a journey in the complex interactions between music, brain and heart. *Eur J Intern Med* **22**, 371–374 (2011).
9. Greco, F., Grazioli, E., Parisi, A., Greco, E. A. & Emerenziani, G. P. Dance and Music for Improving Health among Patients with Breast Cancer and Parkinson’s Disease: A Narrative Review. *Endocrines* **2**, 472–484 (2021).
10. Altaye, K. Z., Mondal, S., Legesse, K. & Abdulkedir, M. Effects of aerobic exercise on thyroid hormonal change responses among adolescents with intellectual disabilities. *BMJ Open Sport Exerc Med* **5**, e000524 (2019).
11. Chang, L. *et al.* Effect of Music Therapy Combined With Aerobic Exercise on Sleep Quality Among Patients With Chemotherapy After Radical Mastectomy: Results From a Randomized Controlled Trial. <https://www.sciencegate.app/document/10.21203/rs.3.rs-208542/v1>
(637508448000000000) doi:10.21203/rs.3.rs-208542/v1.