Benefits of a Yoga-based Cardiac Rehabilitation for Women with Cardiovascular Disease

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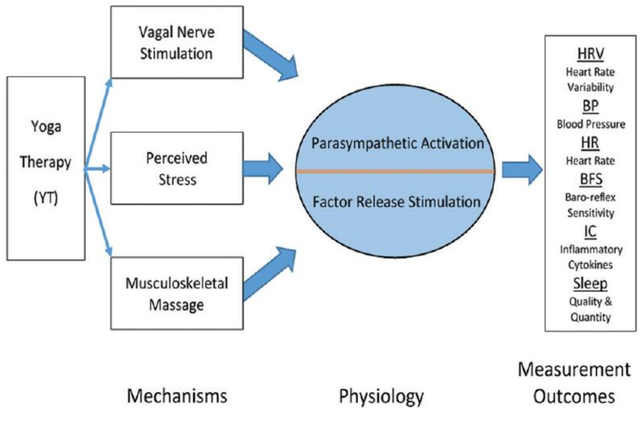
Abstract

- 100 female cardiac patients with coronary artery disease were recruited from hospitals in the Charlotte, NC area.
- Patients were randomly placed into two groups: yoga intervention and control group.
- Patients attended group sessions 3 times a week and were asked to practice 2 other days of the week.
- Patients also attended 1 small group counseling session per week.
- An echocardiogram, HADS and PSS was used to assess LVEF, anxiety, depression and stress for all patients at baseline, 6 weeks, 6 months, and 1 year.

Introduction & Review of Literature

- Cardiovascular disease (CVD) is the leading cause of death for women in the US as it is responsible for approximately 1 in every 5 female deaths ("Women and Heart Disease", 2020).
- The most common type of CVD in women is coronary artery disease (CAD) ("Heart Disease and Women", 2019).
- There are several factors that researchers believe can prevent or reduce the risks of CVD including good diet, physical activity and yoga. Yoga is believed to have physiological, psychological, and psychosocial benefits by improving cardiovascular function and reducing depression and stress (Tillin et al., 2019).



Pullen, P., Seffens, W., & Thompson, W. (2018). Yoga for heart failure: A review and future research. *International Journal of Yoga, 11*(2), 91. doi: 10.4103/ijoy.ijoy_24_17

- Yoga and relaxation techniques are becoming a useful tool in the rehabilitation world for various conditions. Some studies have documented benefits of yoga and meditation additions to traditional CR programs (Raghuram et al., 2013; Eraballi et al., 2018; Yeung et al., 2014).
- Studies have shown LVEF improvements with standard cardiac rehab, but recent studies have shown that yoga-based cardiac rehab significantly improves of LVEF in cardiac patients (Raghuram et al., 2014; Krishna et al., 2014).

Purpose

- The purpose of this study was to determine the physiological and psychological impact of a yoga-based cardiac rehabilitation in adult women with a history of coronary artery disease.
- It was hypothesized that the addition of yoga to a rehabilitation program will expand the benefits by increasing physiological function while reducing depression and anxiety.

Methods

Participants

- Female patients recruited from hospitals in the Charlotte, NC area
- Must be aged 35-65 with a history of CAD, LVEF >35%, be able to participate in yoga sessions
- Informed consent must be signed

Intervention

- A computer generator was used to randomly place patients into the control or intervention group.
- Both groups attended 30-minute supervised group sessions 3 times a week and were asked to practice independently at home 2 other days for 1 year.
  - Yoga group: deep relaxation techniques, pranayama, asanas
  - Control group: breathing exercises, physical therapy in both standing and sitting positions
- Both groups attended one small group counseling session for 30 minutes.
  - Yoga counseling: concepts to reduce stress *(Bhagavadgita)*, promote love and healthy relationships *(Bhaki)*, and find purpose in life *(Jnana)*.
  - Control counseling: concepts to encourage patients to avoid smoking, eat healthy, and exercise regularly.

Instrumentation

- Echocardiogram was taken to determine LVEF
- HADS questionnaire was used to determine anxiety and depression levels
- PSS questionnaire was used to determine everyday stress levels
- Data was recorded at baseline, 6 weeks, 6 months, and 1 year

Results

- Descriptive statistics developed through SPSS for all data collected at each assessment
- ANOVA correlation with a two-tailed p-value of ≤ 0.05 for baseline and 1-year comparison

Operational Definitions

- **Left ventricular ejection fraction:** the percentage of blood that is pumped from the left ventricle with each contraction. Normal LVEF is >50% ("Ejection Fraction Heart Failure Measurement").
- **HADS:** a widely used validated and reliable, self-reported questionnaire to assess anxiety and depression in non-psychiatric populations (Raghuram et al., 2014). Scores <8 suggest low levels of depression while scores ≥8 suggest high levels of depression and anxiety (Sever et al., 2019).
- **PSS:** a popular self-rated, 14 item questionnaire to measure stress in everyday life. It is a validated and reliable tool (Raghuram et al., 2014).
- **Pranayama:** breath control characterized by slow and deep inhalation and exhalation (Mahajan et al., 2019).
- **Asana:** physical posters that can be done in a standing, sitting and lying positions (Eraballi et al., 2018).

Conclusion

- Overall, research indicates that yoga can be effective in improving physiological function as well as reducing depression and anxiety when integrated with CR programs in patients with various types of CVD. Although extensive research has been done on yoga interventions, research needs to be extended to various populations and CVD conditions
- Limitations of this study include patients with only coronary artery disease due to differences in the rehabilitation process and the sample size may not be large enough to accurately represent the population.
- It is recommended that further research be completed on various CVD patients to have a better understanding the physiological and psychological effects of a yoga-based cardiac rehabilitation program.

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