

Evaluating the Effects of a Cardiac Rehabilitation Program Gender-tailored for Women with Coronary Artery Disease: A Systematic Review



Rachel Conniff, SPT
Alana Papa, SPT
Angela Parry, SPT
John Sanko, PT, EdD

Outline

- Background
- Purpose
- Search Terms
- Limitations
- PRISMA
- PEDro
- Results
- Conclusion
- Discussion
- Clinical Relevance
- Acknowledgements

Background

- Cardiovascular disease (CVD) is the leading cause of morbidity and mortality worldwide¹⁻³
- Secondary preventions following a cardiac event are vastly underused by patients due to:^{3,5}
 - Lack of physician endorsement
 - Female gender
 - Higher levels of depression and anxiety
 - Lack of social support
 - Lack of transportation

Women in Cardiac Rehab

- Only 15-20% of women utilize CR services ⁴
- Compared with men, women are at a 2-fold increased risk of non-completion of CR ⁴
- Women exhibit higher levels of depression and anxiety compared to their male counterparts with CVD ^{4,5}

Implications

- There is a need for CR programs to address the needs of women (a gender-tailored approach)
- There is a need to look closely at those CR programs that are gender tailored (if any currently exist) to determine their effectiveness
- There is a growing need to determine which interventions not only improve mortality and morbidity, but also quality of life due to the importance of evidence-based medicine ⁴

Purpose

- To evaluate the effectiveness of gender tailored cardiac rehabilitation (GTCR) vs. traditional cardiac rehabilitation (TCR) in women with coronary artery disease (CAD)

Methods

- Databases:
 - PubMed
 - Academic Search Elite
 - Science Direct
 - CINAHL
 - Ovid
 - Cochrane Library
- Two reviewers independently assessed each study
 - PEDro scale

Methods

- Search Terms

- (Cardiac Rehab* **OR** Cardiac Rehabilitation)
- **AND** (Gender Tailored OR Gender Specific OR Sex Tailored OR Women Tailored)

- Search Limits

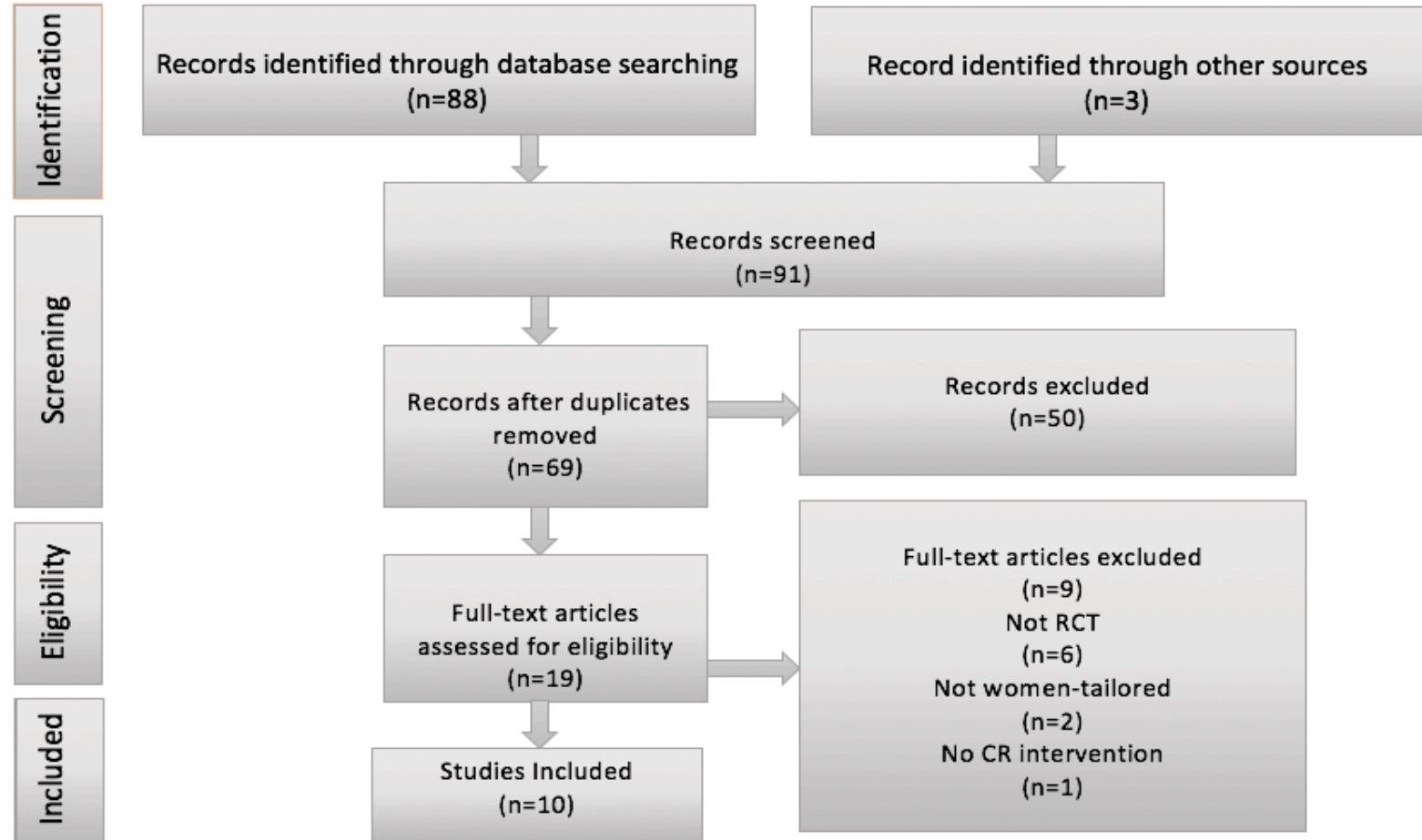
- English, published 2007-2017, human subjects, and peer reviewed scholarly journals using RCT study design



Eligibility Criteria

- Adult women >18 years of age
- Attending cardiac rehab for CAD
- GTCR vs. TCR
- Must look at least one psychosocial or physiological outcome measure

PRISMA



[illegible]

Results

- **Traditional CR interventions included:**
 - Stationary bicycle, treadmill, and walking at target heart rate
- **Gender-tailored CR interventions included:**
 - Stationary bicycle, treadmill, and walking at target heart rate
 - Motivational counseling based on the transtheoretical model (TTM)
 - Educational sessions on co-morbidities commonly seen among women

Results

- **Treatment parameters varied at:**
 - 1-2 sessions per week
 - 60-150 minutes
 - Moderate intensity exercise
 - 12 weeks average duration
 - Treatment durations ranged from 12-26 weeks

TABLE 1**THE FOUR PROCESSES OF MOTIVATIONAL INTERVIEWING**

Phase	Description
Engaging	The provider and patient establish a working relationship. The provider makes it clear that he or she is not there to tell the client what to do.
Focusing	The patient–provider dyad settles on an agenda. The provider maintains patient autonomy by focusing on the patient’s most pressing concern.
Evoking	The provider elicits the patient’s personal reasons for change. When done successfully, the patient will be voicing the arguments for change.
Planning	This phase is marked by the shift from the “why” of change, to the “when” and “how.” The provider guides the patient to come up with the best options for him- or herself.

Results

Primary Outcomes:

- **Mood/Affect**^{4-6,9,10}
 - Depression, anxiety, perception of health
- **Adherence**^{1,3,9,10}
- **Quality of life**^{4,9}
- **Diet**⁹

Secondary Outcomes:

- **Functional capacity (FCE)**^{1,2,7-10}
 - Metabolic equivalents (METS) and treadmill walking (TWT)
- **Fasting lipid profile (FLP)**²
- **Blood pressure (BP)**^{1,2,7-10}

Outcome Measures

Psychosocial Measures	Physiological Measures
<u>Anxiety and Depression</u> <ul style="list-style-type: none">Hospital Anxiety and Depression Scale^{5,9}State Anxiety Inventory (STAI-S)⁴Center for Epidemiological Studies Depression Scale⁴	<u>Functional Capacity</u> ^{1,2,7-10} <ul style="list-style-type: none">Modified Bruce ProtocolTreadmill Walking Time
<u>Adherence</u> ^{1,3,9,10} <ul style="list-style-type: none">Percentage of Sessions Attended	<u>Fasting Lipid Profile</u> ² <ul style="list-style-type: none">Cholestech LDX system
<u>Perception of Health</u> <ul style="list-style-type: none">SF-36 Health Survey^{4,6}Multiple Discrepancies Theory Questionnaire¹⁰	<u>Blood Pressure</u> ^{1,2,7-10} <ul style="list-style-type: none">Calibrated automated oscillometric Monitor
<u>Diet</u> ⁹ <ul style="list-style-type: none">Diet Habit Survey	
<u>Quality of Life</u> <ul style="list-style-type: none">Patient Health Questionnaire⁹Self-Anchoring Striving Scale (SASS)⁴	

Results

- **Benefits of gender-tailored cardiac rehabilitation**

- Eight studies found improvements in adherence^{1-6, 10}
- Three studies found improvements in quality of life^{1,2,9}
- Other significant improvements included:^{1,2,5,6}
 - Anxiety and depression, patient perceptions of health, diastolic blood pressure, diet

- **Other statistically significant benefits of both CR programs included:**

- Triglyceride levels^{1,10}
- Systolic blood pressure¹⁰
- Functional capacity^{1,10}

Conclusion

- Moderate→Strong evidence to support gender-tailored cardiac rehab among women with CAD
 - Due to high PEDro scores secondary to study design
- Findings showed higher reports of psychosocial outcomes and exercise adherence when in gender-tailored cardiac rehab
- Both programs yielded improvements in physiological outcomes

Limitations

- Select databases used
- Different psychosocial outcome measures used
- All women having access to health insurance
- Lack of ethnic diversity among women

Future Research

- Needed to determine the effects of psychosocial outcomes and adherence in women from different ethnicities and socioeconomic status
 - I.e. Does gender-tailored cardiac rehab improve psychosocial outcomes and adherence in multiple ethnicities and those not covered by health insurance?

Clinical Relevance

- Physiological outcomes were comparable for both groups at:
 - 12 weeks
 - 1-2 sessions/week
 - 60-150 minutes
 - Moderate-Intensity exercise
- Gender-tailored cardiac rehab is an efficient method to increase psychosocial outcomes and adherence among women with CAD
 - May consider implementing motivational strategies and educational sessions about co-morbidities

Acknowledgements

- **Thank you!**
 - Dr. Sanko, PT, EdD
 - Dr. Hakim, PT, PhD, NCS
 - Dr. Collins, PT, PhD, MBA, GCS
 - The University of Scranton Physical Therapy Department

References

1. Andraos C, Arthur HM, Oh P, et al. Women's preferences for cardiac rehabilitation program model: a randomized controlled trial. *Eur J Prev Cardiol*. 2015;22(12):1513-1522. doi: 10.1177/2047487314559275.
2. Beckie T.M, Beckstead JW, Groer MW. The influence of cardiac rehabilitation on inflammation and metabolic syndrome in women with coronary heart disease. *J Cardiovasc Nurs*. 2010;25(1):52-60. doi:10.1097/JCN.0b013e3181b7e500.
3. Beckie TM, Beckstead JW. Predicting cardiac rehabilitation attendance in a gender-tailored randomized clinical trial. *J Cardiopulm Rehabil Prev*. 2010;30(3):147-156. doi:10.1097/HCR.0b013e3181d0c2ce.
4. Beckie TM, Beckstead JW. The effects of a cardiac rehabilitation program tailored for women on global quality of Life: A Randomized Clinical Trial. *J Womens Health*. 2010;19(11):1977-1985. doi:10.1089/jwh.2010.1937.
5. Beckie TM, Beckstead JW, Schocken DD, et. al. The effects of a tailored cardiac rehabilitation program on depressive symptoms in women: a randomized clinical Trial. *Int J Nurs Stud*. 2011;48(1):3-12. doi:10.1016/j.ijnurstu.2010.06.005.

References

6. Beckie TM, Beckstead JW. The effects of a cardiac rehabilitation program tailored for women on their perceptions of health: a randomized clinical trial. *J Cardiopulm Rehabil Prev*. 2011;31(1):25-34. doi:10.1097/HCR.0b013e3181f68acc.
7. Beckie TM, Beckstead JW, Kip K, et al. Physiological and exercise capacity improvements in women completing cardiac rehabilitation. *J Cardiopulm Rehabil Prev*. 2013;33(1):16-25. doi:10.1097/hcr.0b013e3182763192.
8. Beckie TM, Beckstead JW, Kip KE, et al. Improvements in heart rate recovery among women after cardiac rehabilitation completion. *J Cardiovasc Nurs*. 2014;29(1):38-47. doi:10.1097/JCN.0b013e31827324e2.
9. Grace SL, Midence L, Oh P, et al. Cardiac rehabilitation program adherence and functional capacity among women: a randomized controlled trial. *Mayo Clin Proc*. 2016;91(2):140-148. doi: <http://dx.doi.org/10.1016/j.mayocp.2015.10.021>.
10. Midence L, Arthur HM, Oh P, et al. Women's health behaviours and psychosocial well-being by cardiac rehabilitation program model: a randomized controlled trial. *Can J Cardiol*. 2016;32(8):956-962. doi:<http://dx.doi.org/10.1016/j.cjca.2015.10.007>.