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Physical and Psychosocial Effects of Cardiac Rehabilitation Participation in Patients With and those Without Coronary Artery Disease

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Abstract

Background: Patients participating in cardiac rehabilitation (CR) referred for coronary artery disease (CAD) diagnoses have improvements in physical capacity and psychological well-being. The primary

Aim of Study: Aim of this study is to evaluate and compare exercise capacity and psychological well-being between patients referred to CR for CAD diagnoses and those referred for non-CAD diagnoses.

Patients and Methods: Primary endpoint was improvement in 6-minute walking distance (6MWD). Secondary endpoints included change in exercise minutes per week (150 minutes/week) (EMW 150), depression scores (PHQ9), anxiety scores (GAD7) and overall quality of life (COOP) scores.

Results: Between January 2015 and February 2020, 617 patients completed the 12-week-CR program and were divided into: group I (referred for non-CAD diagnosis) (N=188) and group II (referred for CAD diagnosis) (N=429). At the completion of their cardiac rehabilitation program, both groups improved their 6MWD without statistical difference (non-CAD group: +188 (110, 274) feet) vs. +200 (89, 290) feet in CAD group, p=0.86).

Improvements in EMW 150 following CR were also similar between both groups (non-CAD group: (%) 54% vs. 51%, in CAD group, p= 0.75). Psychological health scores improved with reduction in GAD7, PHQ9 and COOP scores but changes in scores were not statistically different between both groups. PHQ9 categories showed a significant improvement in the moderate to severe category in patients referred for CAD patients. By adjusting for other covariates, CAD status was not associated with change in 6MWD.

Conclusions: Patients referred to CR for non-CAD diagnoses showed a similar and non-inferior improvement in physical and psychological parameters as patients referred for CAD diagnoses.

Clinical Implications: The study emphasizes the importance of enrollment of patients in the CR for a wide spectrum of cardiac diseases including non-CAD in addition to CAD.

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Key Words: *Cardiac Rehabilitation – Coronary artery disease – Non-coronary artery disease – Heart failure.*

Introduction

CARDIAC rehabilitation (CR) program referral is a Class IA recommendation by AHA/ACC guidelines [1] after myocardial infarction (MI), percutaneous coronary intervention (PCI), coronary artery bypass graft (CABG), stable angina (SA), valvular heart surgeries (VHD), stable heart failure with reduced ejection fraction 40% (HFrEF) and cardiac transplantation (HT). Participation in CR is widely recommended in selected patients with cardiovascular (CV) diseases for secondary prevention [2].

CR in heart diseases is a prognostically vital program, decreases readmission rate and improves quality of life [3]. Most of the evidence supporting the benefits of CR is based on subjects enrolled with coronary artery disease (CAD) related diagnoses. There is less evidence for CR benefits in patients enrolled with non-CAD [4] diagnoses such as stable heart failure with reduced ejection fraction (LVEF 40%), following valve procedures, and post heart transplantation. No direct comparison

List of Abbreviations:

6MWD	: 6-minute walking distance.
AACVPR	: American association of cardiovascular and pulmonary rehabilitation risk score.
COOP	: Overall quality of life score.
CR	: Cardiac rehabilitation.
CRF,	: Cardiorespiratory fitness.
CVD	: Cardiovascular disease.
EMW 150	: Exercise minutes per week.
ETT,	: Exercise tolerance test.
GAD7	: Anxiety score.
PHQ9	: Depression score.

was found between the roles of CR in CAD patients versus non-CAD patients.

We aimed to compare the effect of CR on the change in the 6-minute walking distance (6MWD) as a reliable measurement [5] for the mortality and morbidity outcomes chosen in many other studies.

We hypothesized that after completion of CR, subjects enrolled for non-CAD diagnoses will demonstrate improvements in parameters of physical and psychological well-being similar to subjects enrolled for CAD diagnoses.

Patients and Methods

This analysis was performed in our prospectively collected Brigham and Women's Hospital CR database (Foxborough, Boston, MA) between January 2015 – February 2020 (N=848).

The patients were divided into two groups: patients referred for a diagnosis related to CAD such as SA, MI, PCI, CABG; and patients enrolled with a non-CAD related diagnosis as HFrEF, VHD and HT. Patients who did not complete the CR program were excluded. Among our enrolled cohort, 617 patients completed the program and had paired pre- and post-CR data.

The CR program in BWH consists of an outpatient 12-week program in Foxborough, MA. The program included two one-hour sessions per week that incorporated 30-40 minutes of cardiovascular conditioning, 5-15 minutes of resistance training, 10 minutes of warm-up and cool down, and 5 minutes of stretching or relaxation. Exercise prescription for almost all patients was based on a maximal exercise tolerance test (ETT), or on an entry 6MWD test when an ETT was not performed.

Exercise intensity was prescribed based on two parameters: (1) Heart rate (HR): To maintain their HR below the peak from their ETT and 2) RPE (rate of perceived exertion): An RPE 11-13 was prescribed. The physical training was based on the peak heart rate achieved during an initial ETT. Additionally, there was one weekly 60-minute educational session that covered different prevention-related topics, such as nutrition, physical exercise, stress reduction, and medication adherence. Furthermore, five educational sessions were dedicated to heart-healthy diet, including one session that, specifically, addressed weight loss.

The primary outcome was the change from the start of CR to completion in a 6MWD test.

The secondary outcomes consisted of the change in: Exercise minutes per Week (EMW 150) [defined as patients who exercised more than 150 minutes per week as recommended by the American heart association (AHA)], overall health related quality of life score determined by the Dartmouth Cooperative Functional assessment (COOP) [6], depression scores by Patient Health Questionnaire-9 (PHQ9) [7] (is a 9-item questionnaire to estimate the prevalence of major depressive symptoms [7]), and anxiety scores by General anxiety disorder-7 (GAD7) [7] (is a 7-item questionnaire that measure anxiety frequency). Reduced scores are better in terms of depression (PHQ9), anxiety (GAD7) and overall quality of life (COOP). Anxiety scores were divided into clinical categories [30]: (0-4: no/minimal anxiety, 5-9: Mild anxiety, 10-14: Moderate anxiety, 15-21: Severe anxiety) and depression scores (31) (0-4: No depression, 5-9: Mild depression, 10-14: Moderate depression, 15-19: Moderately severe depression, 20-27: Severe depression). Exercise capacity was assessed by ETT and/or 6MWD.

EMW 150 was collected from patient's questionnaires. All parameters were collected at the beginning and at the end of the CR. The study protocol was approved by the Internal Review Board (IRB) at Brigham and Women's hospital.

Statistical analysis:

Values are presented as mean ± standard deviation for normally distributed variables, median and interquartile range for non-normally distributed variables and frequencies or percentage as appropriate. *t*-test and Wilcoxon signed rank-test were used to compare continuous variables between groups according to normality of distribution. Chi-squared test was used for the analysis of categorical data. We chose to do available case analysis to resolve the issue of missing data.

Multiple linear regression analysis was used to determine if the enrollment diagnosis for CAD was independently related with change in 6MWD. The multivariable adjustment model included: Age, sex, body mass index (BMI), CAD, PHQ9, GAD7, COOP (all at baseline). A level of significance of p 0.05 was used for statistical sgnificance. The statistical analyses were carried out using Stata statistical package (Stata 16.1).

Results

Between January 2015 and February 2020, 848 subjects participated in our CR program, among

them 617 completed the 12-week-CR program and were divided into two groups: Patients enrolled for non-CAD diagnoses composed of 188 patients (30%) and patients enrolled for CAD diagnoses composed of 429 patients (70%) (Fig. 1). Both groups had no significant statistical difference regarding age, weight, BMI, hypertension, and waiting time before enrollment. Compared to subjects enrolled for non-CAD diagnoses, those enrolled for CAD diagnoses were more likely to be men (p=0.007), have diabetes and hyperlipidemia, to be on statins (p=0.02), and have a higher American association of cardiovascular and pulmonary rehabilitation (AACVPR) risk category (p<0.001) (Table 1). They also had a higher aerobic capacity (p<0.001). Patients enrolled for CAD diagnoses had higher baseline 6MWD than non-CAD participants (median (IQR): 1535 (1293,1755) vs.1414 (1176,1670) feet, p=0.003). The proportion of patients exercising more than 150 minutes per week was low and similar in both groups (EMW 150 N (%): 34 (18%) vs. 83 (19%), p=0.71). No statistical difference between both groups regarding psychological outcomes except for less GAD7 anxiety scores at baseline in patients referred for non-CAD (p=0.045). Demographic and clinical characteristics by CAD are listed in Table (1).

The changes in parameters at baseline pre-CR and at follow-up post-CR are described in Tables (2,3) there was a significant improvement (p<0.001) of all parameters in the enrolled for non-CAD group 6MWD median (IQR): +188 (110, 274) feet or 12% (increase from baseline), EMW 150 (%: 18% v. 70%, p<0.001), anxiety and depression categories showed a significant reduction towards the lowest category as well as the COOP scores were significantly reduced (p<0.001). But no significant change was found in weight and BMI in the enrolled as non-CAD group (Figs. 3,4).

There was a significant improvement (p<0.001) of all parameters in the enrolled for CAD group: 6MWD +200 (89, 290) feet or 13% [increase from baseline)]. Also, anxiety and depression categories showed a significant reduction towards the lowest category as well as the COOP scores were significantly reduced (p<0.001) (Figs. 3,4).

While 6MWD improved in both groups, there was no statistical difference (increase from baseline in the enrolled for non-CAD group 12% vs. 13% in the enrolled for CAD group, p=0.86) (Fig. 2). Improvements in EMW150 following CR were also similar between both groups (enrolled for non-CAD group vs. CAD group: 54% vs. 51%, p=0.75). Psychological health scores (anxiety and depression categories and COOP scores) were not statistically different post CR. (Tables 4,5).

In a multivariable linear regression model, the enrollment diagnosis for CAD was not independently associated with change in 6MWD (Table 6).

Table (1): Baseline clinical and demographic characteristics (N=617) among CR completers.

Variable name	Non_CAD (N=188, 30%)	CAD (N=429, 70%)	p-value
Demograhics and cardiac risk factors:			
Age, years	63±14	64±10	0.51
Males	126 (67%)	332 (77%)	0.007
Weight, lbs	193±46	194±39	0.76
BMI, kg/m^2	29±5.9	29±5	0.99
Hypertension	157 (83%)	347 (80.9%)	0.44
Smoking	15 (8%)	52 (12%)	0.13
Diabetes	30 (16%)	108 (25%)	<0.001
Hyperlipidemia	126 (67%)	391 (91%)	<0.001
Hemoglobin A1C,% (N = 384)	5.8±0.9	6.1±1	0.009
LDL cholesterol, mg/dl.	83.4±33.8	71.2±33.0	<0.001
Cardiac surgical procedure	138 (73%)	146 (34%)	<0.001
AACVPR Risk profile:			
Low	41 (21%)	163 (38%)	<0.001
Medium	56 (29%)	139 (32%)	
High	91 (48%)	124 (29%)	

Table (1): Count.

Variable name	Non-CAD (N=188, 30%)	CAD (N=429, 70%)	*p*-value
Pre CR markers:			
Baseline HR, bpm	73±13	68±11	<0.001
Peak HR, bpm	121±23	125±21	0.044
Baseline SBP, mmHg.	126±18.9	127±17	0.57
Baseline DBP, mmHg.	73±9	73±9	0.80
Peak SBP, mmHg.	144±24	157±22	<0.001
Peak DBP, mmHg.	71±10	72±9	0.39
Exercise test, mets (N =573)	6±3	8±3	<0.001
Left ventricular EF, % (N=588)	50±16	56±9	<0.001
Medications:			
Beta Blockers	157 (83%)	376 (87%)	0.17
Calcium Blocker	25 (13%)	70 (16%)	0.34
ACEI	83 (44%)	216 (50%)	0.15
Statin	124 (66%)	410 (95.6%)	<0.001
Antidepressant	43 (22.9%)	115 (26.8%)	0.3
Days to enrollment	39±25	35±35	0.21
Enrollment diagnoses:			
AMI	2 (1.1%)	154 (35.9%)	<0.001
PCI	5 (2.7%)	241 (56.2%)	<0.001
CABG	26 (13.8%)	146 (34.0%)	<0.001
Heart valve replacement/repair	132 (70.2%)	0	<0.001
Heart transplantation	5 (2.7 %)	0	<0.001
Heart failure	50 (26.6%)	0	<0.001
Stable angina	0	40 (9.3 %)	<0.001
Other	12 (6.4%)	0	<0.001
Outcomes at baseline:			
6MWD, feet	1414 (1176,1670)	1535 (1293,1755)	0.003
EMW150†N (%)	34 (18%)	83 (19%)	0.71
GAD7[b]	1 (0, 4)	2 (0, 5)	0.045
GAD7 (clinical interpretation)[c]:			
No/minimal anxiety (0-4)	139 (74%)	295 (69%)	0.59
Mild anxiety (5-9)	28 (15%)	73 (17%)	
Moderate to severe anxiety (10)[10]	18 (9.6 %)	47 (11%)	
PHQ9[d]	2 (1, 5)	3 (1, 5)	0.93
PHQ9 (clinical interpretation)[e]:			
No depression (0-4)	130 (69%)	286 (67%)	0.60
Mild depression (5-9)	31 (17%)	83 (19%)	
Moderate to severe depression (10)[1]	24 (13%)	47 (11%)	
COOP[f]	18 (15, 22)	18 (15, 22)	0.51

Abbreviations: AACVPR: American association of cardiovascular and pulmonary rehabilitation, BMI: Body mass index, Ibs: Pounds, HR: Heart rate, SBP: Systolic blood pressure, DBP: Diastolic blood pressure, ETT: Exercise tolerance test, AMI: Acute myocardial infarction, CR: Cardiac rehabilitation, ACEi: Angiotensin converting enzyme inhibitors, 6MWD: 6 minute-walking distance, † EMW150: exercise minutes per week if >150 minutes per week.

a Data reported as mean ± standard deviations, n (%) or median (interquartile range)
b Anxiety scores.
c Anxiety scores categories: 0-4: no/minimal anxiety, 5-9: Mild anxiety, 10-14: Moderate anxiety, 15-21: Severe anxiety).
d Depression scores
e Depression scores categories: 0-4: No depression, 5-9: Mild depression, 10-14: Moderate depression, 15-19: Moderately severe depression, 20-27: Severe depression). 27
f Overall health quality.

Table (2): Clinical and demographic characteristics pre and post cardiac rehabilitation between both groups (N=617).

Variable name	Non-CAD (N=188, 30%)	CAD (N=429, 70%)	*p*-value
Weight, lbs:			
Pre	193±46	194±39	0.76
Post	193±45	191±38	0.66
Change	0±3	–1±5	0.001
BMI, kg./m ^{2}:			
Pre	29.7±5.9	29.7±5.3	0.99
Post	29.5±5.70	29.1±5.2	0.35
Change	0±3.4	–1.6±5.7	0.001
SBP, mmHg:			
Pre	122±19	123±18	0.63
Post	117±14	119±12	0.10
Change	–5± 16	–4± 16	0.09
DBP, mmHg:			
Pre	71±11	70±10	0.34
Post	67±9	68±9	0.26
Change	–3±9	–1±10	0.05
LDL cholesterol, mg./dl:			
Pre	83±33	71±33	<0.001
Post	83±30	60±25	<0.001
Change	–0.5±29	–11±30	<0.001

Table (3): Primary and secondary outcomes in both groups pre and post CR (N=617).

Variable name	Non-CAD (N=188, 30%)	CAD (N=429, 70%)	*p*-value
6MWD, ft.:			
Pre	1414 (1176, 1670)	1535 (1293, 1755)	0.003
Post	1618 (1417, 1855)	1738 (1475, 1960)	0.004
Change	188 (110, 274)	200 (89, 290)	0.86
Change,%	12 (5, 21)	13 (5, 20)	0.46
EMW150, N (%):			
Pre	34 (18%)	83 (19.3%)	0.71
Post	133 (71%)	300 (70%)	0.84
Change	101 (54%)	220 (51%)	0.75
GAD7:			
Pre	1 (0, 4)	2 (0, 5)	0.045
Post	1 (0, 3)	1 (0 , 3)	0.33
Change	0 (–2, 0)	0 (–3, 0)	0.21
PHQ9:			
Pre	2 (1, 5)	3 (1, 5)	0.93
Post	1 (0, 3)	1 (0, 3)	0.75
Change	–1 (–3, 0)	–1 (–3, 0)	0.98
COOP:			
Pre	18 (15, 22)	18 (15, 22)	0.51
Post	16 (13, 19)	15 (12, 19)	0.75
Change	–3 (–6, 0)	–2 (–5, 0)	0.20

Table (4): Multivariable linear regression analysis in study patients for delta 6MWD, ft. (N=617).

Variable	Coef. (95%CI)	*p*-value
CAD	2.39 (–5.08,29.86)	0.86
Age, years	–2.19 (–3.30,–1.07)	<0.001
Sex	29.41 (–0.22,59.03)	0.05
BMI**a**, lbs	–2.79 (–5.18,-0.41)	0.02
GAD7**ab**	0.27 (–4.11,4.64)	0.90
PHQ9**ac**	–1.12 (–5.77,3.53)	0.64
COOP**ad**	0.79 (–2.56,4.13)	0.64

Abbreviations: CAD: Coronary artery diseases, 6MWD: 6 minutes walking distance, ft.; Sex: One unit increase=men.
a Values at baseline. **b** Anxiety score. **c** Depression score. **d** Quality of life score.

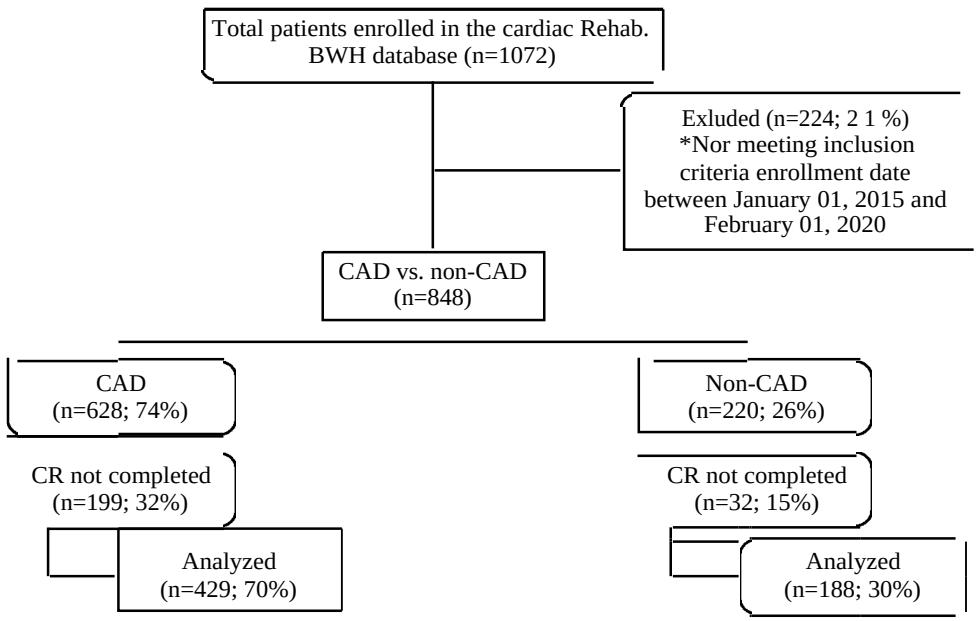

Fig. (1): Consort diagram for the study patients.

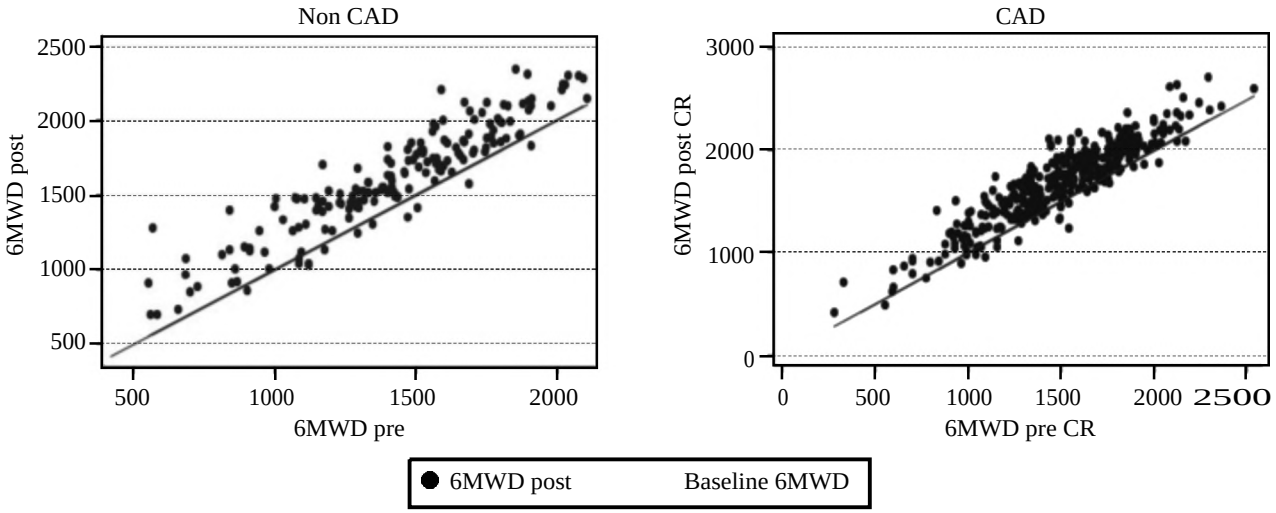

Fig. (2): Scatterplot of the 6MWD pre and post CR in non-CAD and CAD groups.

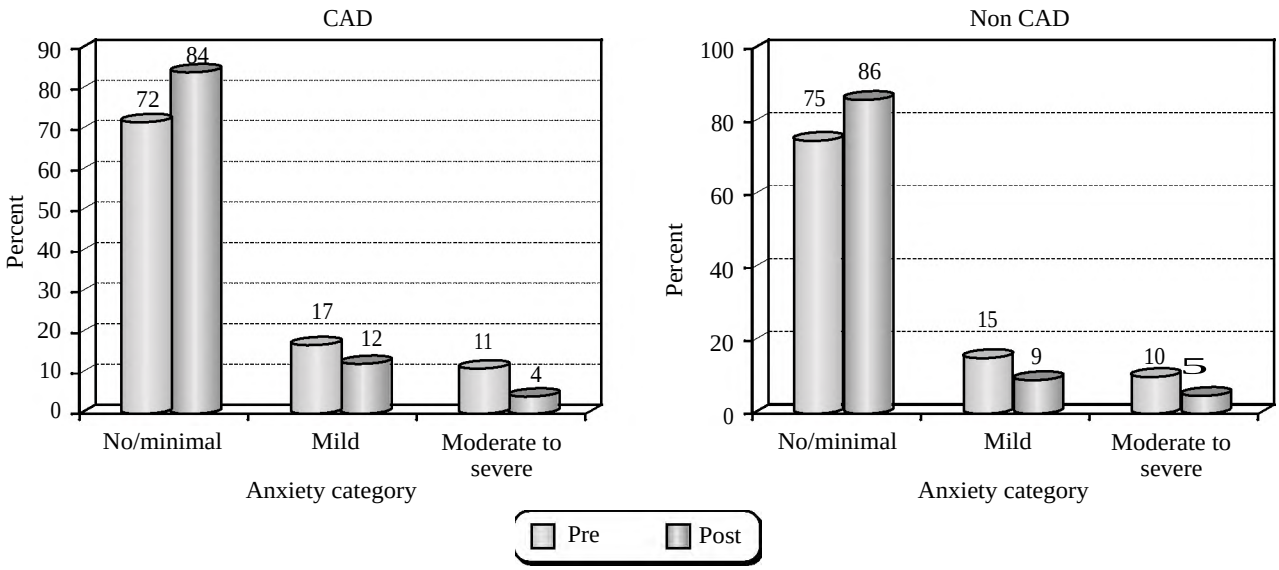

Fig. (3): GAD7 anxiety categories before and after CR for both groups.

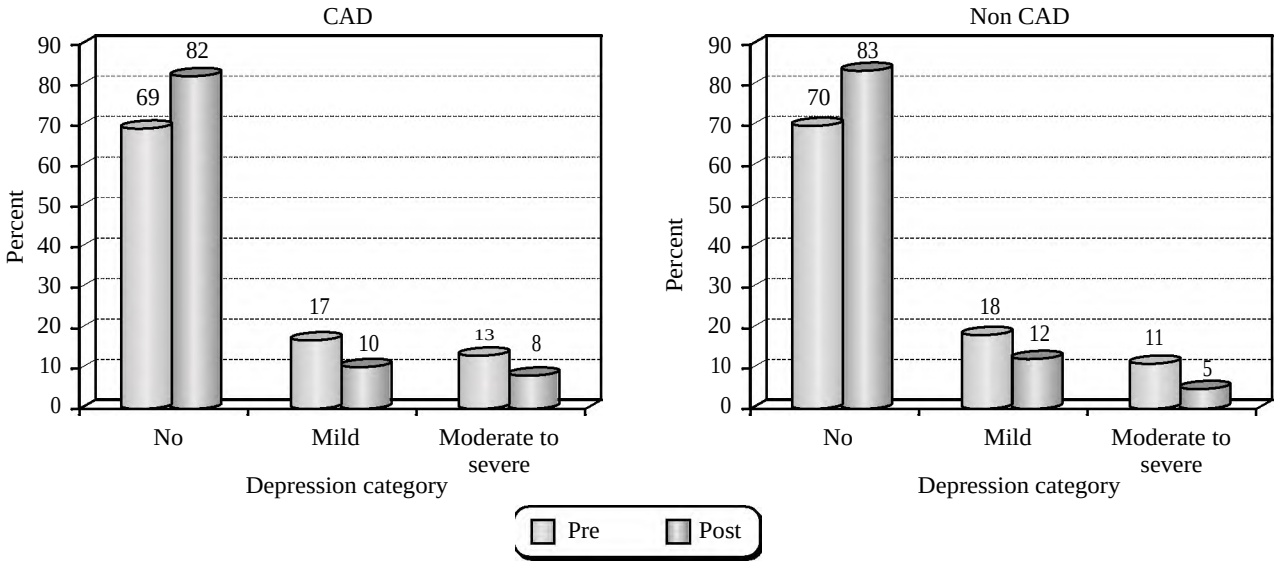

Fig. (4): PHQ9 depression categories before and after CR for both groups.

Discussion

We studied a contemporary cohort of real-world patients referred to CR for CAD or for non-CAD related diagnoses and demonstrated that patients referred for non-CAD diagnoses derived at least similar physical and psychosocial benefits as participants referred for CAD related diagnoses.

Our results show a strong and significant improvement in all outcomes in both groups.

Both study groups experienced similar improvements in exercise capacity evidenced by comparable increases in 6MWD and EMW 150 following CR program participation despite significantly higher baseline heart rate, lower baseline aerobic capacity and lower left ventricular ejection fraction in the referred for non-CAD group. Although the group referred for CAD diagnoses had significantly older patients, more males and more smokers.

An association between the CR program and amelioration of physical and psychological parameters after several cardiac diseases or procedures has been investigated in previous studies **[10 -14]**.

Several controlled cohort studies and meta-analyses have found a survival benefit for patients receiving CR after acute coronary syndromes (26% reduction of cardiac mortality, 18% reduction in recurrent hospitalization), even in the modern era of early revascularization and statins, with a proven cost-effectiveness **[15]**. These benefits appear to be through direct physiological effects of exercise training, but, also, through the effects on risk factors control.

Our results showed a significant decrease in LDL-cholesterol and blood pressure measurements before and after CR program.

In the study by Pollmann et al. **[19]**, they assessed the effect of CR by a 6-minute walk test (6MWT) on 211 patients of 250 who underwent heart valve surgery. There was an improvement in this test distance by 13% from 1145 feet pre-CR to 1289 feet post-CR (p=0.0016). In a subset analysis of our data, Jafri et al., **[20]** found that in 115 patients with aortic valve replacement and in 46 patients with mitral valve replacement improved their 6MWD by 14.5 and 12%, respectively. They found that the psychological outcomes (GAD7, PHQ9 and COOP) improved minimally and similarly.

Also, in CAD patients, Sokhteh et al., **[21]** assessed the effect of CR on functional capacity through the 6MWT. They found that there was a significant improvement of nearly 70% in the 6MWT from 974 feet pre-CR to 1670 feet post-CR. The patients in this study had at least three times walking sessions at home per week.

Whereas Gardiner et al., **[22]** found an improvement of 7% in 6MWT in both coronary heart disease patients and non-coronary heart disease patients (n=78) from 1633 feet to 1751 feet (p0.001). For psychological outcomes, PHQ9 score was reduced significantly in the rehab. arm (p<0.01).

A meta-analysis by Ciani et al., **[23]** showed an improvement from 100 feet to 164 feet in patients with stable heart failure with reduced ejection fraction (40%). Z hang e a ., **[24]** demonstrated in his study on 130 patients (65 in a CR program vs. 65 controls) referred after PCI post-MI that patients included in the CR arm had their 6MWT improved significantly more than the control arm (p<0.001).

Several studies pointed out that exercise is a diagnostic and prognostic tool as well as a therapeutic intervention in stable chronic heart failure which led-widely- to recommend the enrollment of these patients in CR programs. Although the heart failure patients in our study were included, collectively, in the enrolled as non-CAD group of which they represent 27% (50 patients). The results of the study confirm the CR benefit in stable heart failure with reduced ejection fraction (40%) **[16]**.

As it was previously mentioned, we would like to emphasize the role of CR in enrolled for non-CAD patients, of them, a relatively new indication is cardiac transplantation patients. This specific cohort of patients represents 3% (5 patients) in our enrolled for non-CAD group. CR in these patients may be effective in reversing the complex pathophysiological consequences associated with cardiac denervation and prevention of immunosuppression-induced adverse effects. The results in this study may help to elaborate the evidence for this new indication **[17]**.

Cardiac valves repair or replacement including TAVR (Transaortic valve replacement) represents 70% (132 patients) which is most of the enrolled for non-CAD group in our study.

Previous studies found in this group of patients a short-term improvement in physical capacity, may positively affects return to work and being cost effective. Voller et al., **[18]** found; by using the 6MWD; that TAVR patients reached a longer walking distance at discharge after the three-week inpatient structured CR program.

Guidelines emphasize that CR program is essential prognostically for the whole spectrum of CAD from stable angina to acute myocardial infarction to PCI and CABG.

6MWD is a strong outcome to assess CR effect given its validity, reliability and responsiveness as a CR outcome found in a systematic review done by Bellet et al., [5] (on 11 high-quality studies). The mean change of 6MWD in the aforementioned systematic review is the same mean change in our study (198 feet, 10 to 28% increase from baseline).

Multivariable linear regression model showed that the enrollment diagnosis is not associated with a change in 6MWD.

Psychological wellbeing measured by PHQ9, GAD7 and COOP scores showed similar improvement in patients enrolled for CAD or non-CAD diagnoses, and a significant decrease in the proportion of subjects with greater than minimal anxiety or depression after CR participation in both groups.

In patients with HFrEF, Middleton et al., [25] noticed a significant improvement in PHQ-9 after CR participation (n=19, 5±5 to 3±4, p=0.05). Also, in the same study of 79 patients enrolled in CR for various diagnoses including atrial fibrillation (AF), and patients' high risk of coronary artery disease (CAD), an improvement in PHQ9 was observed (n=79, 4.8 to 2.42 (median values), p=<0.01) [25]. The average anxiety and depression scores in our analysis were, however, lower than in these studies.

In a large study of 1403 CR participants, psychological and quality of life measures were assessed pre- and post-CR through three questionnaires [27]. There was a significant improvement in each domain of the COOP score with the smallest change in the 'social support' score (0.11) and the largest change in the 'physical fitness' score (0.82).

One of the major strengths of our analysis is to include a large cohort of well-characterized contemporary patients treated with current standards and using validated outcomes measures of physical and psychosocial wellbeing. However, our study has several limitations: This was an observational cohort, and our analysis included only subjects with paired data who completed the program. About 25% of patients were non completers with missing follow-up data (with similar baseline data). The patients were classified according to their main referral diagnosis without objective assessment of CAD prevalence or severity. Though it is conceivable that patients in this age group likely have some degree of CAD without it being obstructive. The non-CAD group as well as the CAD group included patients with different pathophysiological mechanisms which could have influenced the outcomes differently.

Conclusions:

Patients enrolled for a non-CAD diagnosis showed an important and non-inferior improvement in physical and psychological wellbeing parameters comparable to patients enrolled for CAD diagnosis. Our study emphasizes the need to encourage CR participation in all eligible patients including those with CAD or those with non-CAD related diagnoses.

Declarations:

Ethics approval and consent to participate: The study protocol was approved by the Internal Review Board (IRB) at Brigham and Women's hospital, MA, USA and an informed consent was obtained from every participant in the study.

Consent for publication: I am the single author for this research article, and I give my consent to publish it.

Availability of data and material: All data and materials are available when requested.

Competing interests: No competing interests.

Funding: Self-funded.

Authors' contributions: Dr. Ihab Yassin is the single author of this research article, he edited it, made the biostatistics and revised it as part of his educational project in the master of medical sciences in clinical investigation (MMSCI) at Harvard medical school, USA.

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الآثار الجسدية والنفسية والإجتماعية للمشاركة فى إعادة تأهيل القلب فى المرضى الذين يعانون من مرضى الشريان التاجى والذين لا يعانون منه

تمهيد : المرضى المشاركون فى إعادة القلب (CR)، المحولون بسبب مرض الشريان التاجى (CAD) لديهم تحسن فى القدرة البدنية والرفاه النفسى. الهدف الأساسى من هذه الدراسة هو تقييم ومقارنة القدرة على ممارسة الرياضة والرفاه النفسى بين المرضى المحولين إلى CR بتشخيص CAD وأولئك المحولين بتشخصيات غير CAD.

طرق البحث : نقطة النهاية الأساسية هى التحسن فى إختيار ٦ دقائق سيراً على الأقدام (MWD6). وشملت نقاط النهاية الثانوية التغير فى دقائق التمرين الأسبوع (≤ ١٥٠دقيقة/أسبوع) (150EMW)، ودرجات الإكتئاب (9PHQ)، ودرجات القلق (7GAD) ودرجات جودة الحياة العامة (COOP).

النتائج :بين يناير ٢٠١٥ وفبراير ٢٠٢٠، أكمل مريضاً برنامج CR لمدة ١٢ أسبوعاً وتم تقسيمهم إلى : المجموعة الأولى (المحالة للتشخيص غير CAD) (N=188) والمجموعة الثانية (المشار إليها لتشخيص CAD) (N=429). عند الانتهاء من برنامج إعادة تأهيل القلب، تحسن MWD6 فى كلتا المجموعتين بدون فرق إحصائى (المجموعة غير CAD: +188 (274,110) قدم مقابل +٢٠٠ (٢٩٠،٨٩) قدم فى مجموعة CAD، p=0.86).

كان التحسن فى 150EMW بعد CR متشابه أيضاً بين كلتا المجموعتين (المجموعة غير CAD: (%) 54% مقابل ٥١٪، فى المجموعة CAD، p=0.75). تحسنت درجات الصحة النفسية مع إنخفاض فى درجات 7GAD و 9PHQ و OPCO ولكن التغيرات فى الدرجات لم تكن مختلفة إحصائياً بين كلتا المجموعتين. أظهرت فئات 9PHQ تحسناً كبيراً فى الفئة المتوسطة إلى الشديدة فى المرضى المحولين بسبب CAD. من خلال تعديل للمتغيرات المشتركة الأخرى، لم تكن حالة CAD مرتبطة بالتغيير فى MWD6.

الإستنتاجات : أظهر المرضى المحولون إلى CR لتشخيصات غير CAD تحسناً مماثلاً فى المعلمات الجسدية والنفسية مثل المرضى المحو لين لتشخيص CAD.

الآثار السريرية : تؤكد الدراسة على أهمية تسجيل المرضى فى برنامج إعادة التأهيل القلبى لمجموعة واسعة من أمراض القلب بما فى ذلك المرضى ذوى CAD أو غيره.