Bridging the Gap between Soma and Psyche:

Collaborative care and related interventions in patients with heart disease

Jeff C. Huffman, MD for the
MGH Cardiac Psychiatry Research Program

EAPM Annual Meeting

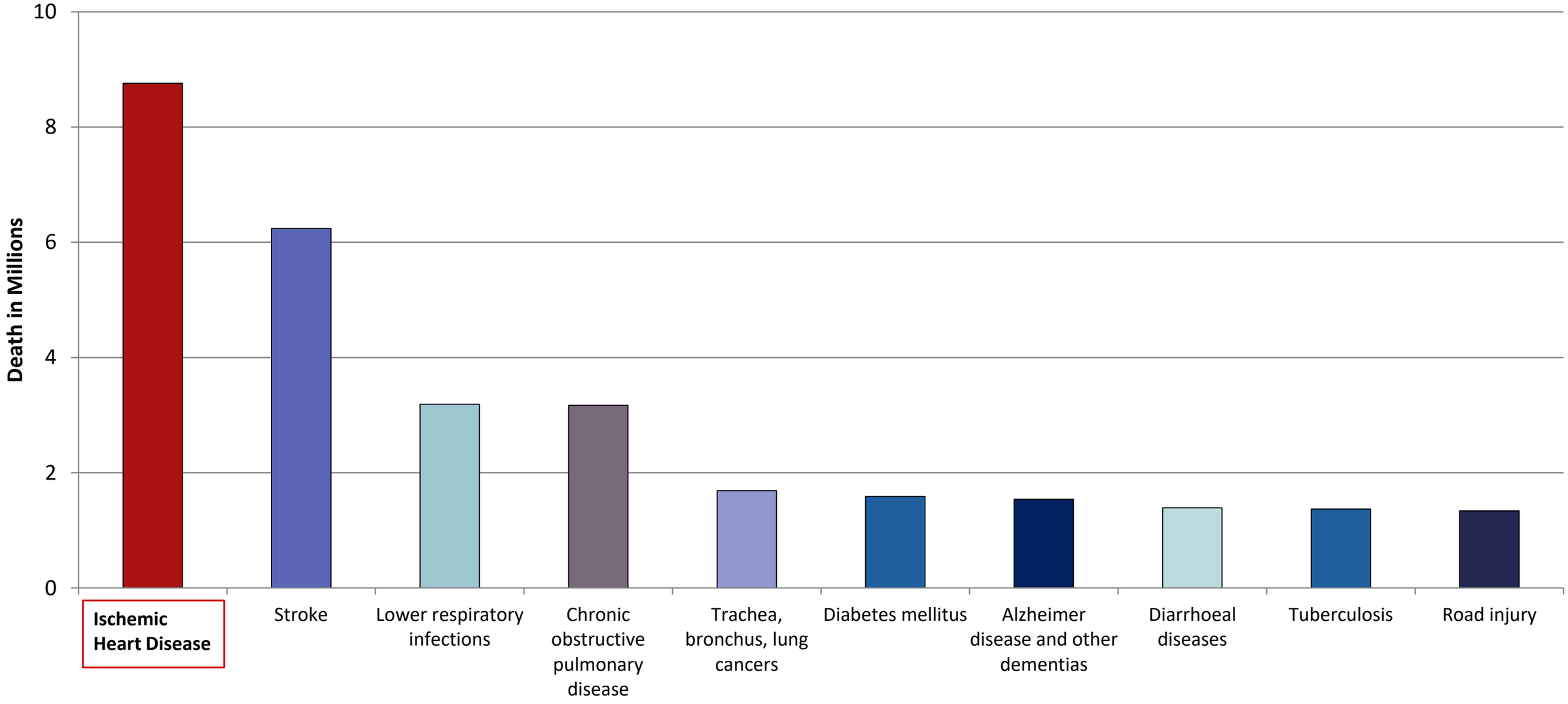
June 2017

EAPM
The European Association of Psychosomatic Medicine

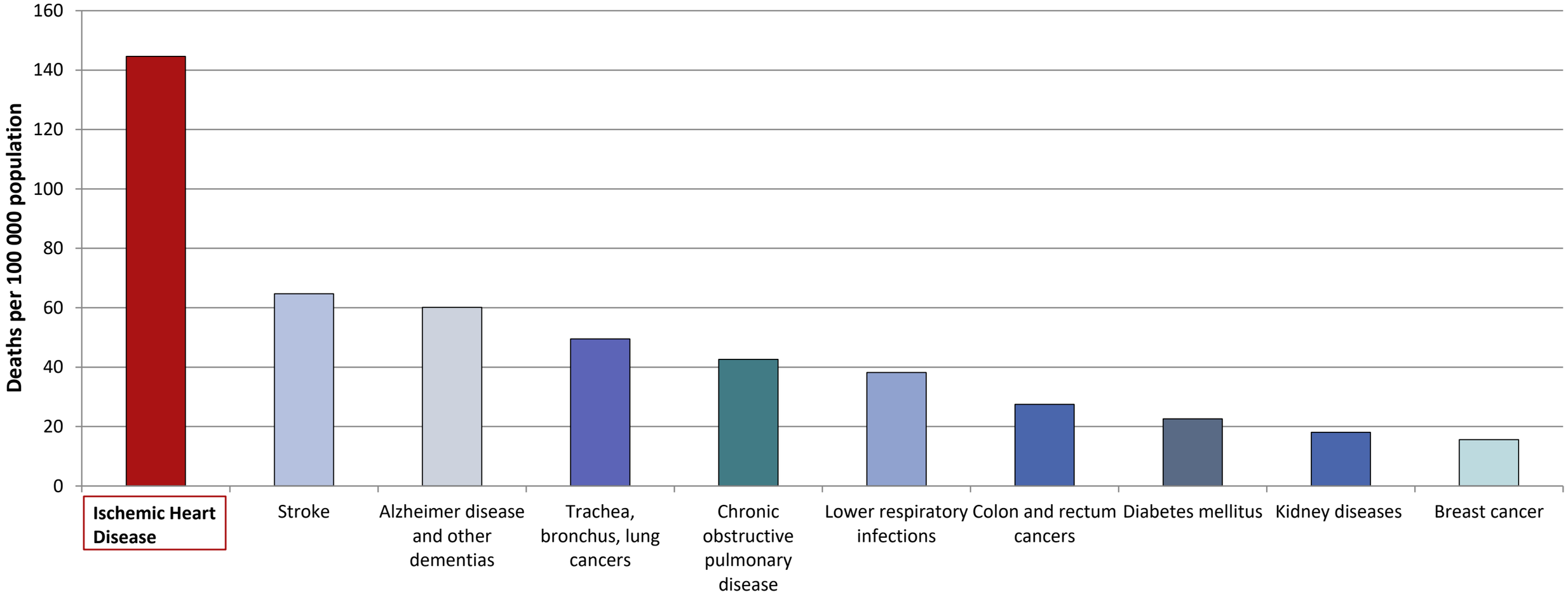
ACADEMY OF PSYCHOSOMATIC MEDICINE

MGH Cardiac Psychiatry Research Program

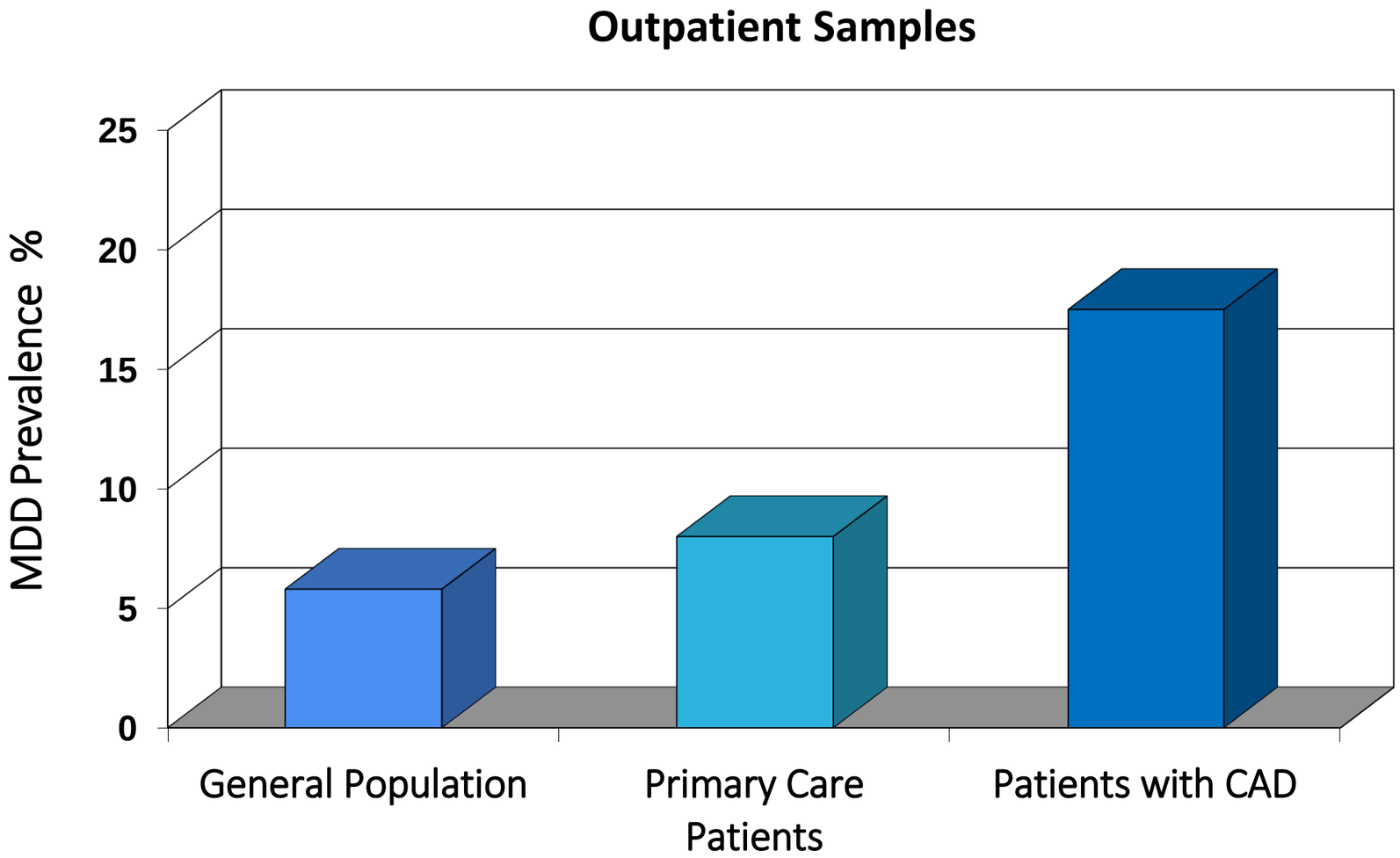
Top 10 causes of death globally 2015



Top 10 causes of death in high-income economies 2015



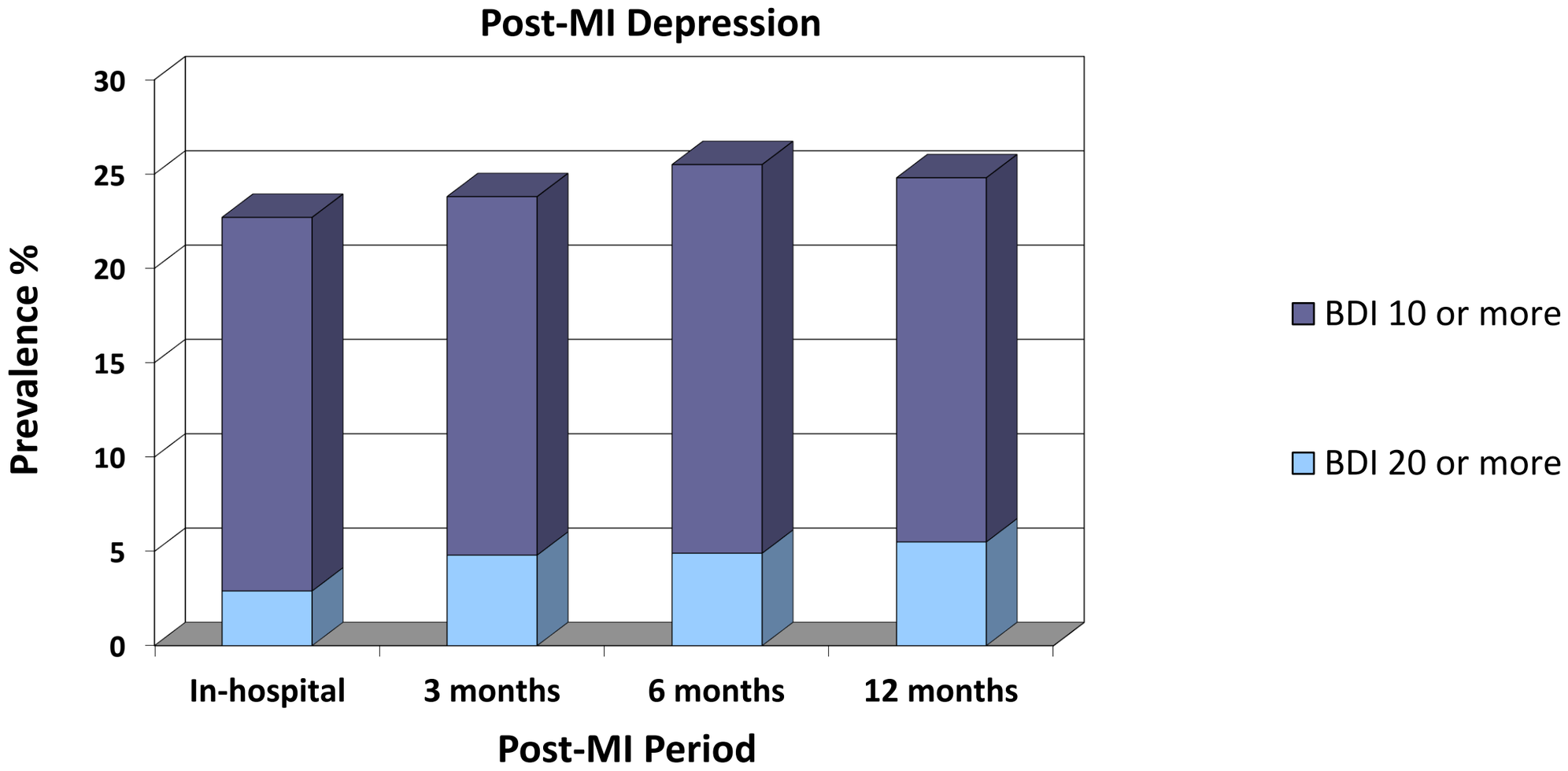
Prevalence of Depression



O'Connor, 2009; Li, 2008; Carney 2008; Celano 2011; Carney 2016

MGH Cardiac Psychiatry Research Program

Course

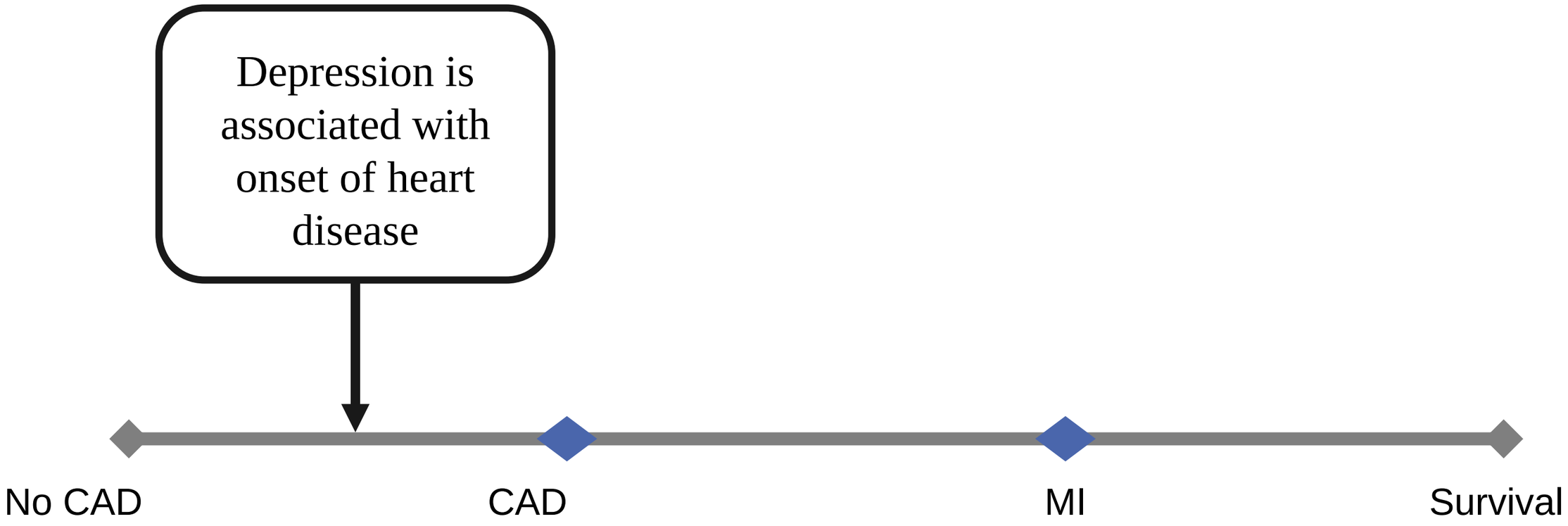


Kaptein 2006

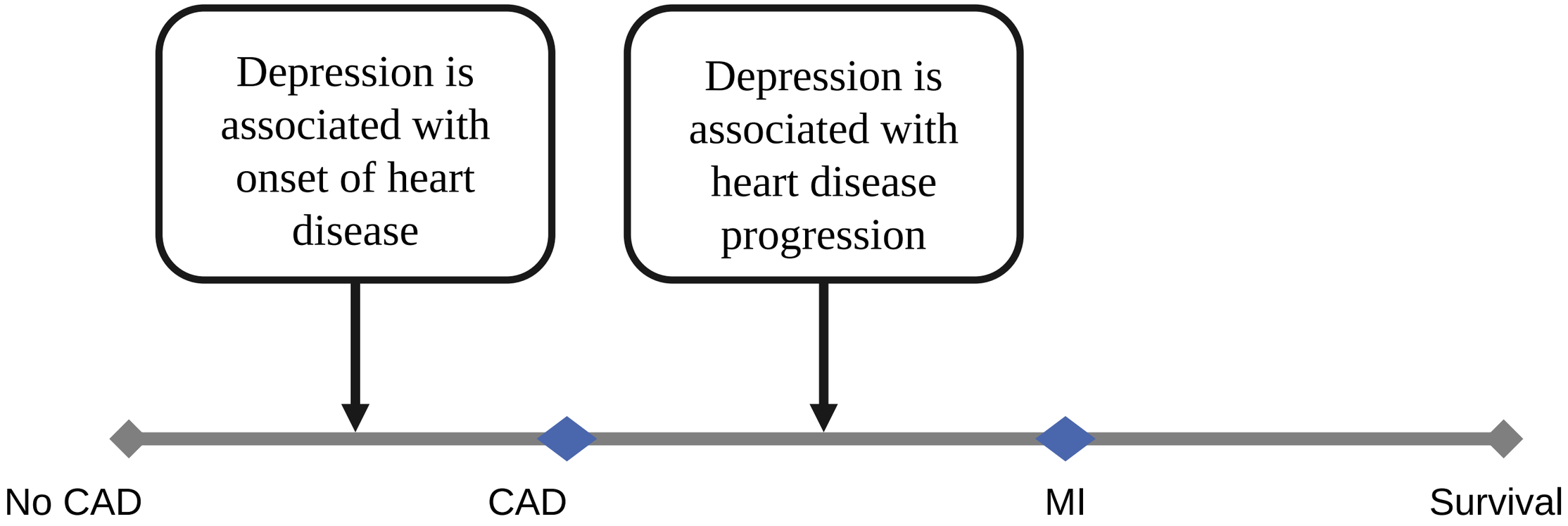
MGH Cardiac Psychiatry Research Program

Depression and Cardiac Outcome

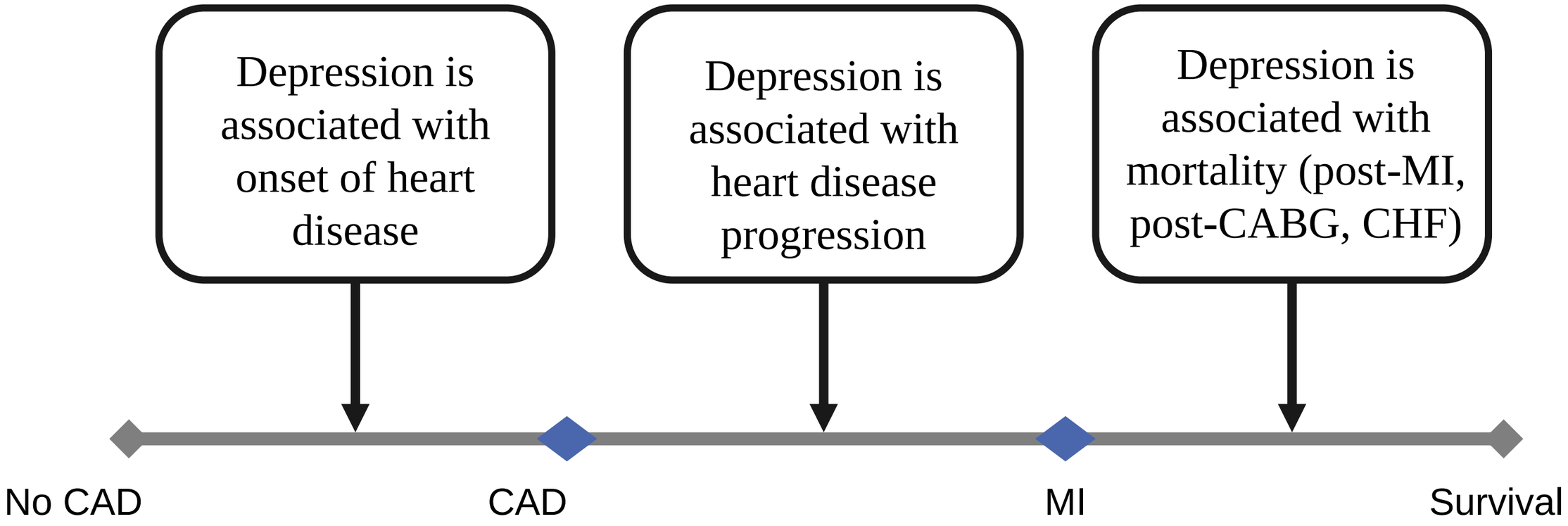
Depression and Cardiac Outcome



Depression and Cardiac Outcome



Depression and Cardiac Outcome



AHA Scientific Statement: February 2014

Depression as a Risk Factor for Poor Prognosis among Patients with Acute Coronary Syndrome:

Systematic Review and Recommendations

AHA Scientific Statement

Depression as a Risk Factor for Poor Prognosis Among Patients With Acute Coronary Syndrome: Systematic Review and Recommendations

A Scientific Statement From the American Heart Association

Judith H. Lichtman, PhD, MPH, Co-Chair; Erika S. Froelicher, RN, MA, MPH, PhD, FAHA, Co-Chair; James A. Blumenthal, PhD, ABPP; Robert M. Carney, PhD; Lynn V. Doering, RN, DNSc, FAHA; Nancy Frasure-Smith, PhD; Kenneth E. Freedland, PhD; Allan S. Jaffe, MD; Erica C. Leifheit-Limson, PhD; David S. Sheps, MD, MSPH, FAHA; Viola Vaccarino, MD, PhD, FAHA; Lawson Wulsin, MD; on behalf of the American Heart Association Statistics Committee of the Council on Epidemiology and Prevention and the Council on Cardiovascular and Stroke Nursing

Background—Although prospective studies, systematic reviews, and meta-analyses have documented an association between depression and increased morbidity and mortality in a variety of cardiac populations, depression has not yet achieved formal recognition as a risk factor for poor prognosis in patients with acute coronary syndrome by the American Heart Association and other health organizations. The purpose of this scientific statement is to review available evidence and recommend whether depression should be elevated to the status of a risk factor for patients with acute coronary syndrome.

Methods and Results—Writing group members were approved by the American Heart Association's Scientific Statement and Manuscript Oversight Committees. A systematic literature review on depression and adverse medical outcomes after acute coronary syndrome was conducted that included all-cause mortality, cardiac mortality, and composite outcomes for mortality and nonfatal events. The review assessed the strength, consistency, independence, and generalizability of the published studies. A total of 53 individual studies (32 reported on associations with all-cause mortality, 12 on cardiac mortality, and 22 on composite outcomes) and 4 meta-analyses met inclusion criteria. There was heterogeneity across studies in terms of the demographic composition of study samples, definition and measurement of depression, length of follow-up, and covariates included in the multivariable models. Despite limitations in some individual studies, our review identified generally consistent associations between depression and adverse outcomes.

Conclusions—Despite the heterogeneity of published studies included in this review, the preponderance of evidence supports the recommendation that the American Heart Association should elevate depression to the status of a risk factor for adverse medical outcomes in patients with acute coronary syndrome.

Key Words: AHA Scientific Statements ■ acute coronary syndrome ■ coronary heart disease ■ depression ■ risk factors

Depression and elevated depressive symptoms are common among the estimated 15.4 million US adults with coronary heart disease (CHD).[1] Approximately 20% of patients hospitalized for an acute coronary syndrome (ACS; myocardial infarction [MI] or unstable angina [UA]) meet the American Psychiatric Association's *Diagnostic and*

The American Heart Association makes every effort to avoid any actual or potential conflicts of interest that may arise as a result of an outside relationship or a personal, professional, or business interest of a member of the writing panel. Specifically, all members of the writing group are required to complete and submit a Disclosure Questionnaire showing all such relationships that might be perceived as real or potential conflicts of interest.

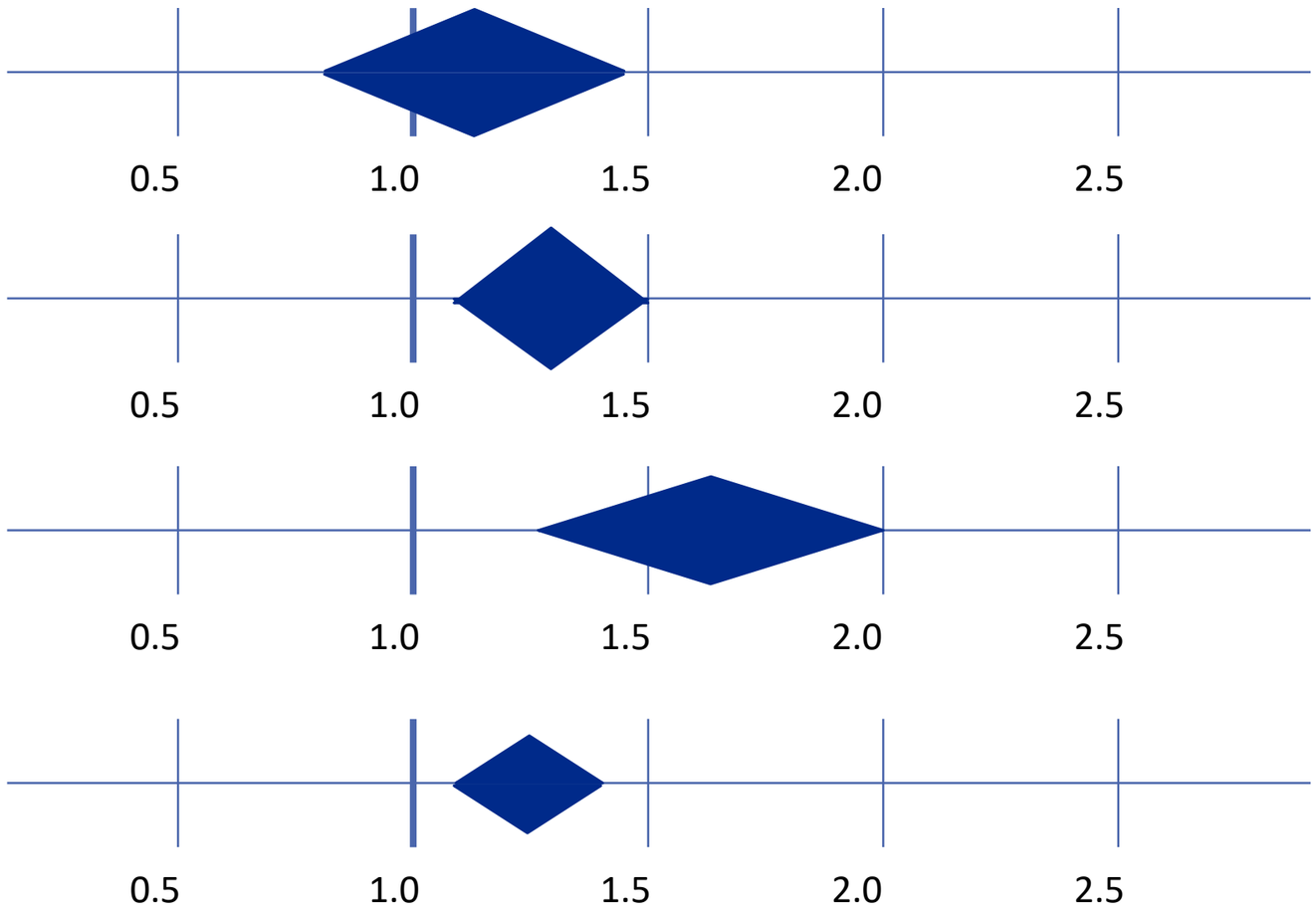
This statement was approved by the American Heart Association Science Advisory and Coordinating Committee on January 24, 2014. A copy of the document is available at http://my.americanheart.org/statements by selecting either the "By Topic" link or the "By Publication Date" link. To purchase additional reprints, call 843-216-2533 or e-mail kelle.ramsay@wolterskluwer.com.

The American Heart Association requests that this document be cited as follows: Lichtman JH, Froelicher ES, Blumenthal JA, Carney RM, Doering LV, Frasure-Smith N, Freedland KE, Jaffe AS, Leifheit-Limson EC, Sheps DS, Vaccarino V, Wulsin L; on behalf of the American Heart Association Statistics Committee of the Council on Epidemiology and Prevention and the Council on Cardiovascular and Stroke Nursing. Depression as a risk factor for poor prognosis among patients with acute coronary syndrome: systematic review and recommendations: a scientific statement from the American Heart Association. *Circulation*. 2014;129:•••–•••.

Expert peer review of AHA Scientific Statements is conducted by the AHA Office of Science Operations. For more on AHA statements and guidelines development, visit http://my.americanheart.org/statements and select the "Policies and Development" link.

Lichtmann 2014

Anxiety and Cardiac Outcomes



Dichotomous Predictor
Mortality as Outcome
OR 1.07 (0.80-1.43)

Continuous Predictor Mortality as Outcome
OR 1.22 (1.08-1.49)

Dichotomous Predictor
Composite Outcome
OR 1.58 (1.27-1.96)

Continuous Predictor
Composite Outcome
OR 1.21 (1.11-1.40)

Celano, 2015

Current Models of Care

- **Psychotherapeutic interventions**
  - Effective for mood sx, fewer effects on medical outcomes
  - Very hard to access in the real world
- **Psychopharmacological interventions**
  - More accessible
  - Trials of monotherapy have only been modestly successful
- **Treatment studies in other settings**
  - Remission requires flexible, stepped, aggressive care based on ongoing monitoring and matching to patient preferences

Freedland, 2015; Freedland 2009; Berkman 2003; O'Connor 2010; Angermann 2016

Collaborative Care Models

- **Utilize care manager (SW/RN) to:**
  - Screen for and diagnose depression in medical settings
  - Coordinate between specialist, PCP, and patient
  - Provide educational or therapeutic interventions
  - Longitudinally monitor depressive sx
- **This allows patients to:**
  - Have specialist-level depression treatment
  - Receive evidence-based stepped care for depression
  - Get depression care integrated with rest of medical care
- **Effective and cost-effective (sometimes cost-saving)**

Katon 1999; Archer 2012; Katon 2013; Coventry 2014

Bypassing the Blues

- **Collaborative care (CC) for post-CABG patients with depression**
  - 8 months of telephone-delivered CC vs. treatment as usual (TAU)
  - CC: greater improvements in mental HRQoL, physical functioning, and mood symptoms ($p<.02$)
    - **No differences in readmissions**
  - At 12 months following randomization, CC patients had $2068 lower estimated median costs compared to TAU
  - Those with higher optimism less likely to be readmitted, independent of baseline depression and other factors

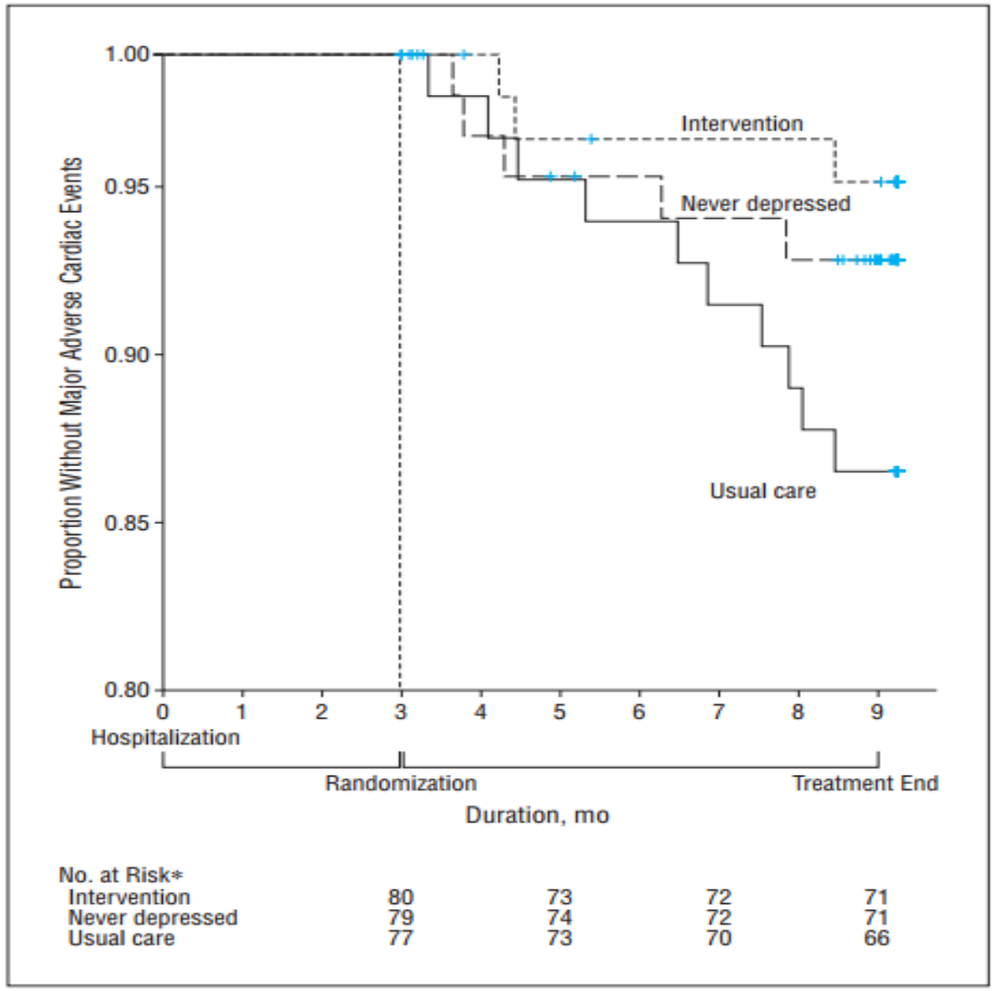
Bypassing the Blues

A Study to Improve the Quality of Life Following Cardiac Bypass Surgery

Rollman 2009; Tindle 2012; Donohue 2014

The COPES Trial

- **Coronary Psychosocial Evaluation Study (COPES):**
  - Greater improvements in depression (BDI: 5.8 point improvement vs. 1.9; P=.005; ES=.59)
  - Intervention patients also had lower rates of MACE (4% vs. 13%; P=.047)



Davidson 2010

MGH Cardiac Psychiatry Research Program

The CODIACS Study

- **Comparison of Depression Interventions after Acute Coronary Syndrome (CODIACS):**
  - Similar trial (N=150) in patients with elevated depressive symptoms 2 to 6 months after an ACS
  - Depressive symptoms decreased more in the active treatment group (BDI: 10.1 points vs. 6.6 points; P= .01; effect size .59)
  - Overall health care estimated costs were not significantly different but were lower (-$325)

Davidson 2013

A Low-intensity Collaborative Care Program for Depression in Hospitalized Cardiac Patients

The Screening Utilization and Collaborative Care for more Effective and Efficient treatment of Depression (SUCCEED) Trial

SUCCEED

EAPM
The European Association of Psychosomatic Medicine

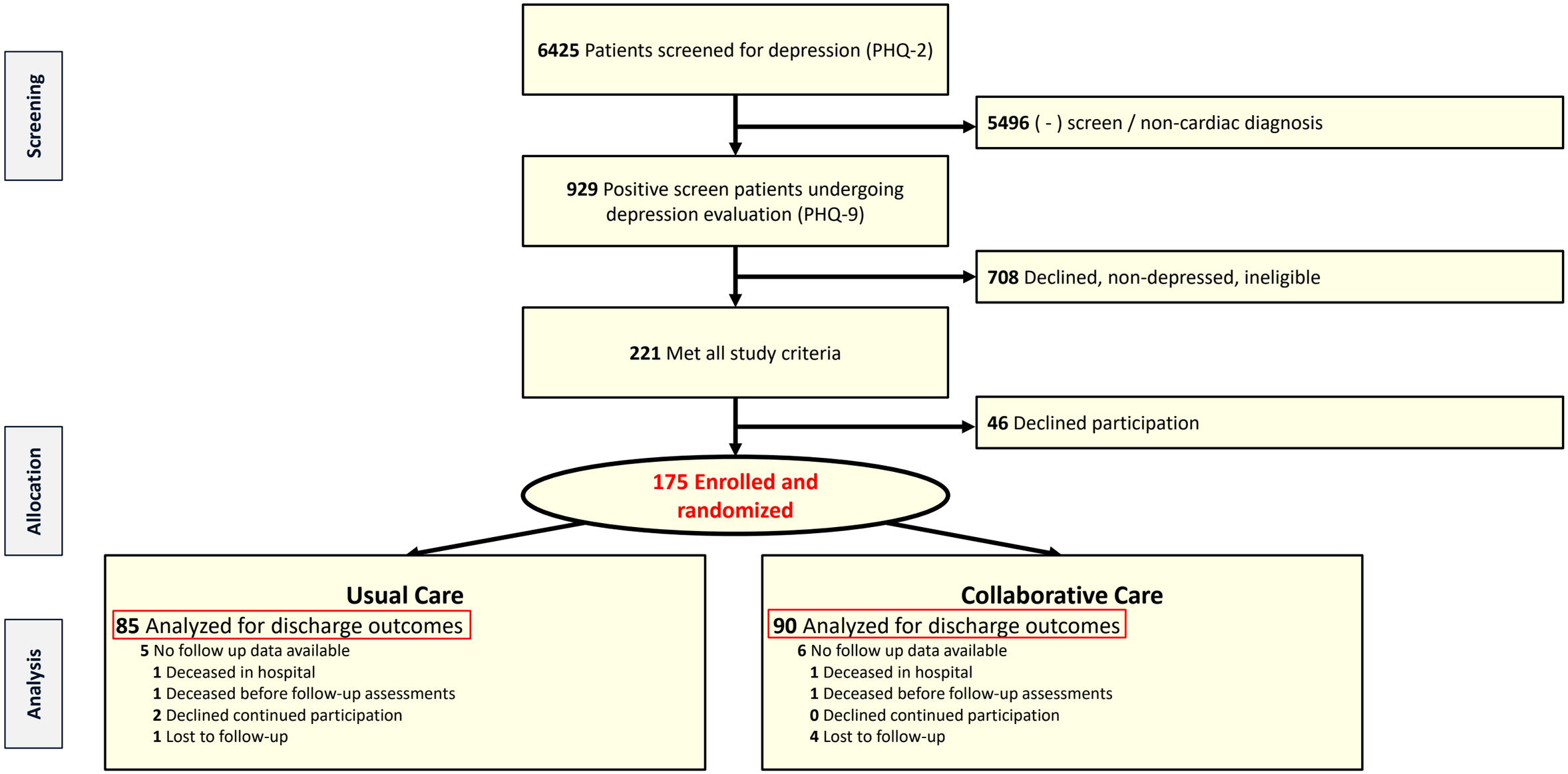
ACADEMY OF PSYCHOSOMATIC MEDICINE

MGH Cardiac Psychiatry Research Program

Intervention Features

- **Extends prior work in several ways:**
  - Included multiple cardiac conditions
  - Pragmatic, with few exclusions
  - Initiated collaborative care in the hospital
  - Key population
    - High risk of complications, readmission, and mortality

SUCCEED Consort



Study Outcomes

Variable	Usual Care	Collaborative Care	B/w-group diff	P-value
12 week outcomes				
Depression (PHQ-9)	-5.30 (-6.75 to -3.85)	-8.73 (-10.08 to -7.38)	-3.43 (-5.41 to -1.45)	**.001***
Mental HRQoL (SF-12)	7.27 (5.04 to 9.51)	13.19 (9.93 to 16.45)	5.92 (1.97 to 9.87)	**.003***
Anxiety (HADS-A)	-2.40 (-3.36 to -1.44)	-4.26 (-5.45 to -3.07)	-1.86 (-3.39 to -0.32)	**.02***
6 month outcomes				
Adherence (MOS)			1.30	**.027***
Cardiac sx (number)	-1.66 (-2.28 to -1.04)	-2.46 (-2.94 to -1.98)	-0.80 (-1.59 to -0.01)	**.047***
Cardiac sx (score)	-4.15 (-5.48 to -2.81)	-6.29 (-7.24 to -5.34)	-2.15 (-3.79 to -0.50)	**.011***
Physical HRQoL (SF-12)	3.88 (1.12 to 6.64)	2.14 (-0.31 to 4.59)	-1.75 (-5.44 to 1.95)	**.35**
Cardiac readmissions	**40.5%**	**39.5%**	**OR=0.96**	**.90**

Circulation: Cardiovasc Qual Outcomes, 2011

Predictors of Depression Non-response at 6 Months in SUCCEED

Variable	Odds Ratio	95% Confidence Interval	P-value
Anxiety (HADS-A)	1.13	1.03 to 1.23	**.011**
Admission diagnosis	0.95	0.60 to 1.49	**.82**
Gender	1.54	0.75 to 3.18	**.24**
Intervention group	0.73	0.35 to 1.52	**.40**
Physical HRQoL (initial SF-12 PCS score)	0.96	0.93 to 1.00	**.037**
Prior diagnosis of depression	1.19	0.52 to 2.71	**.68**

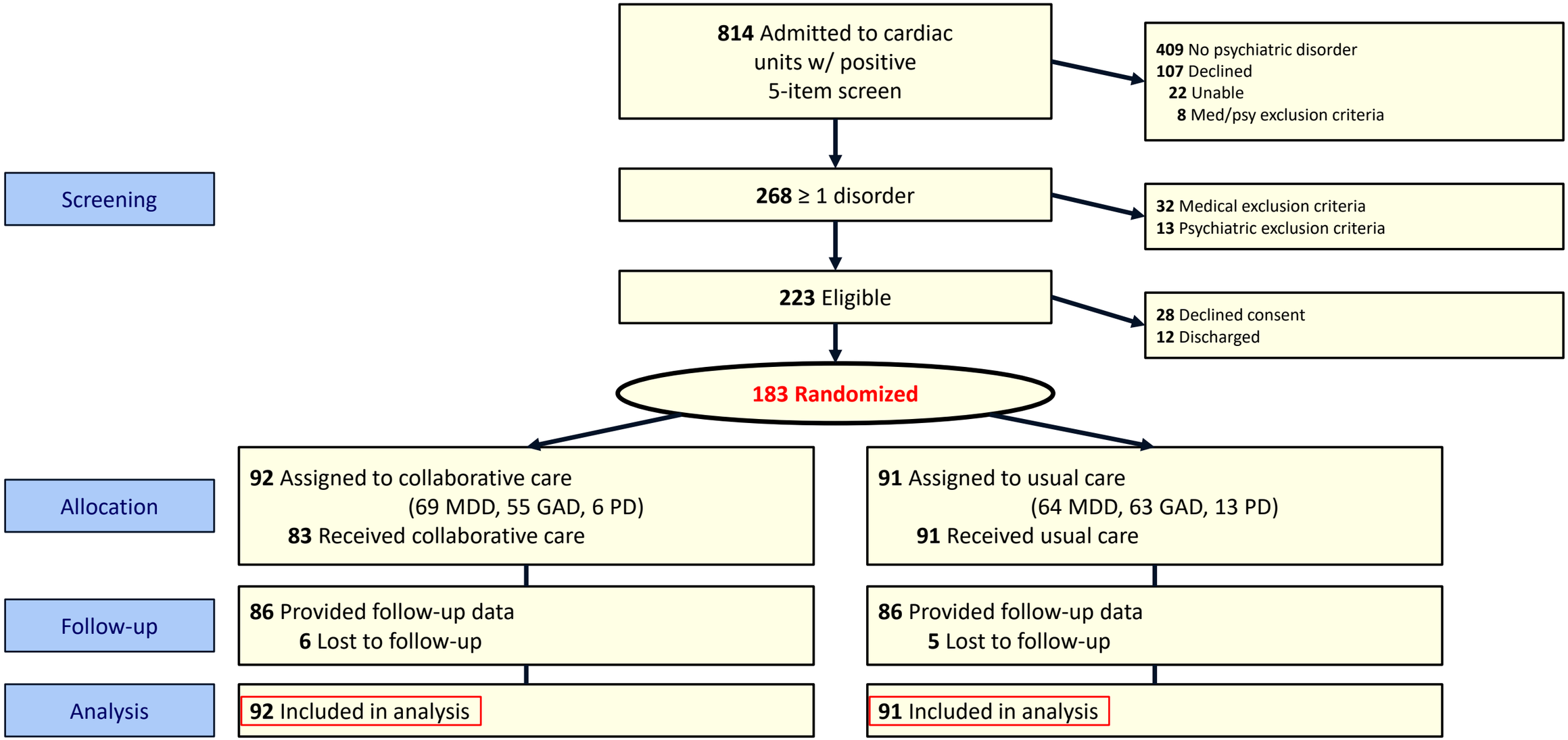
Celano 2012

A Low-intensity Collaborative Care Program for Depression and Anxiety Disorders in Patients with Cardiac Illness

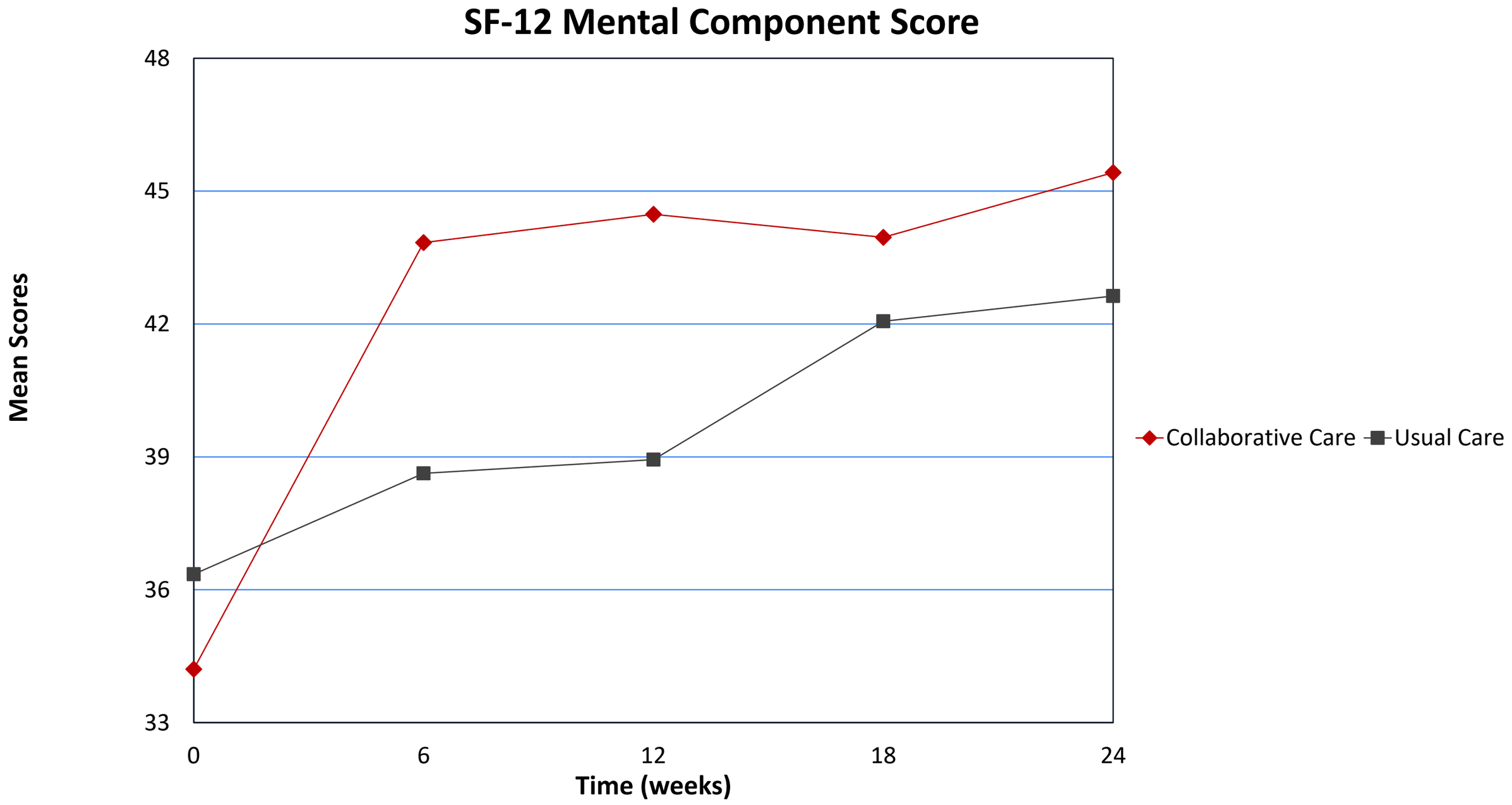
*THE **M**ANAGEMENT **O**F **S**ADNESS AND **A**NXIETY **I**N **C**ARDIOLOGY (MOSAIC) TRIAL*

JAMA Intern Med, 2014

MOSAIC Consort

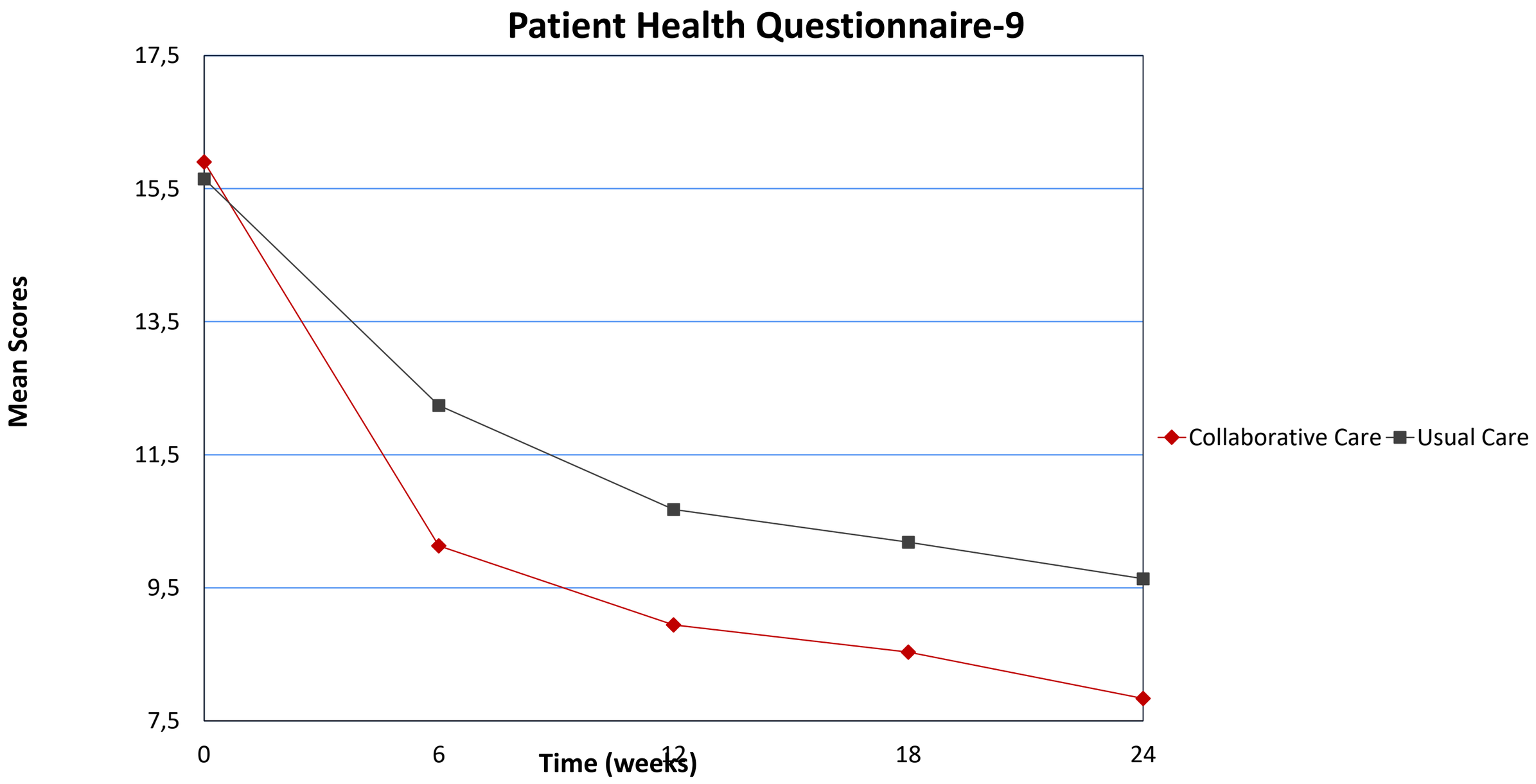


Contemp Clin Trials, 2014

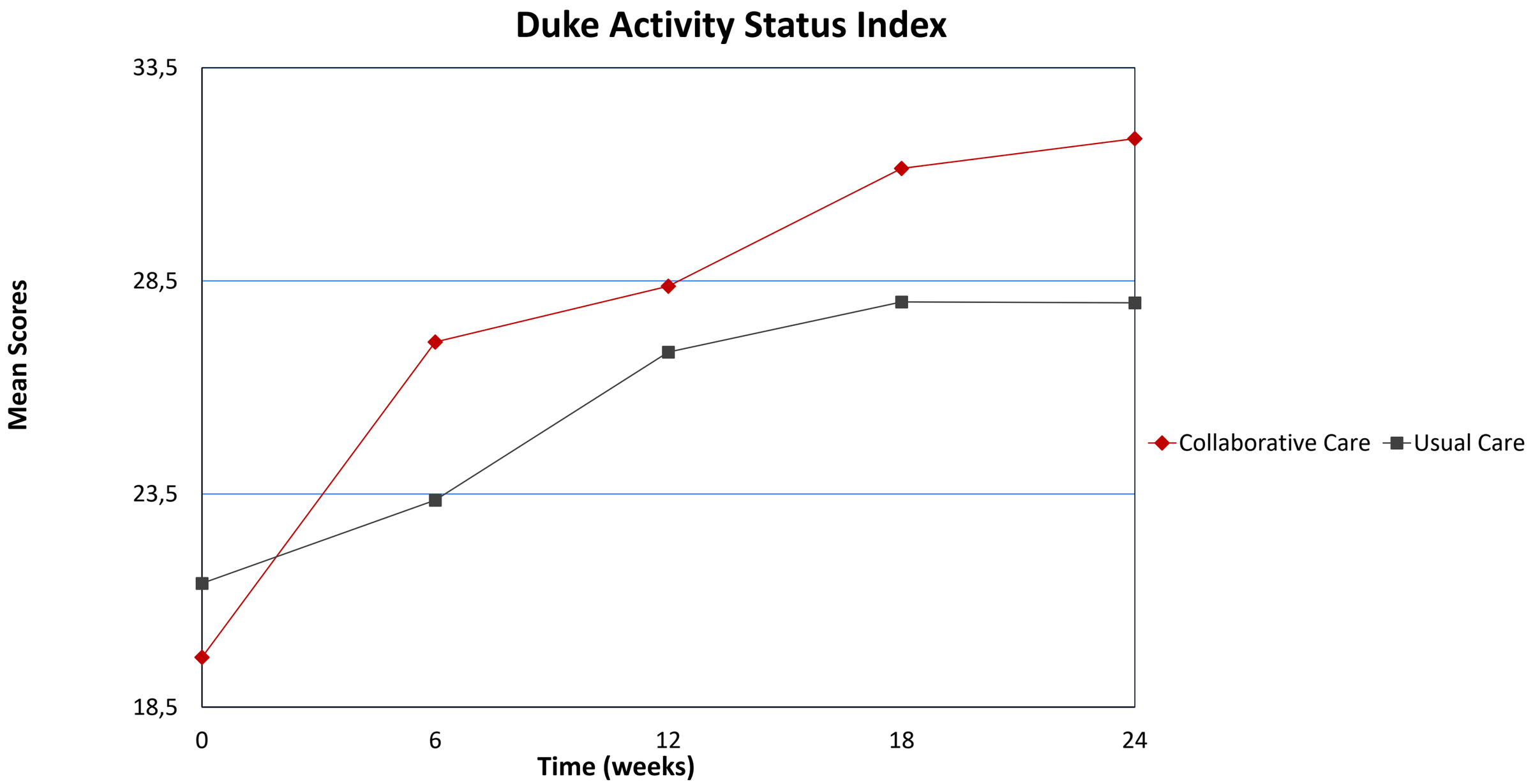


p=.002; effect size 0.61

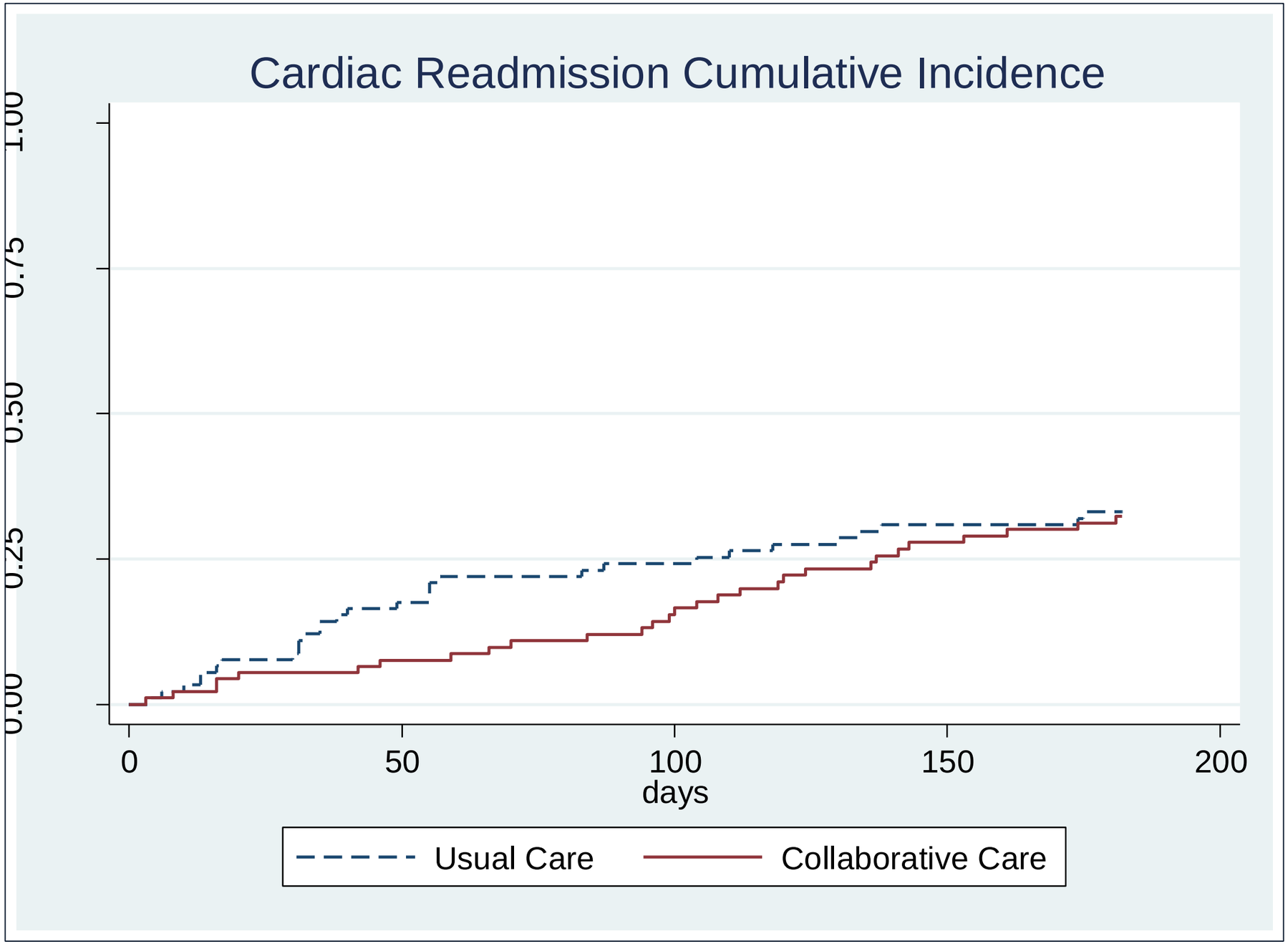
MOSAIC



p=.045; effect size 0.45

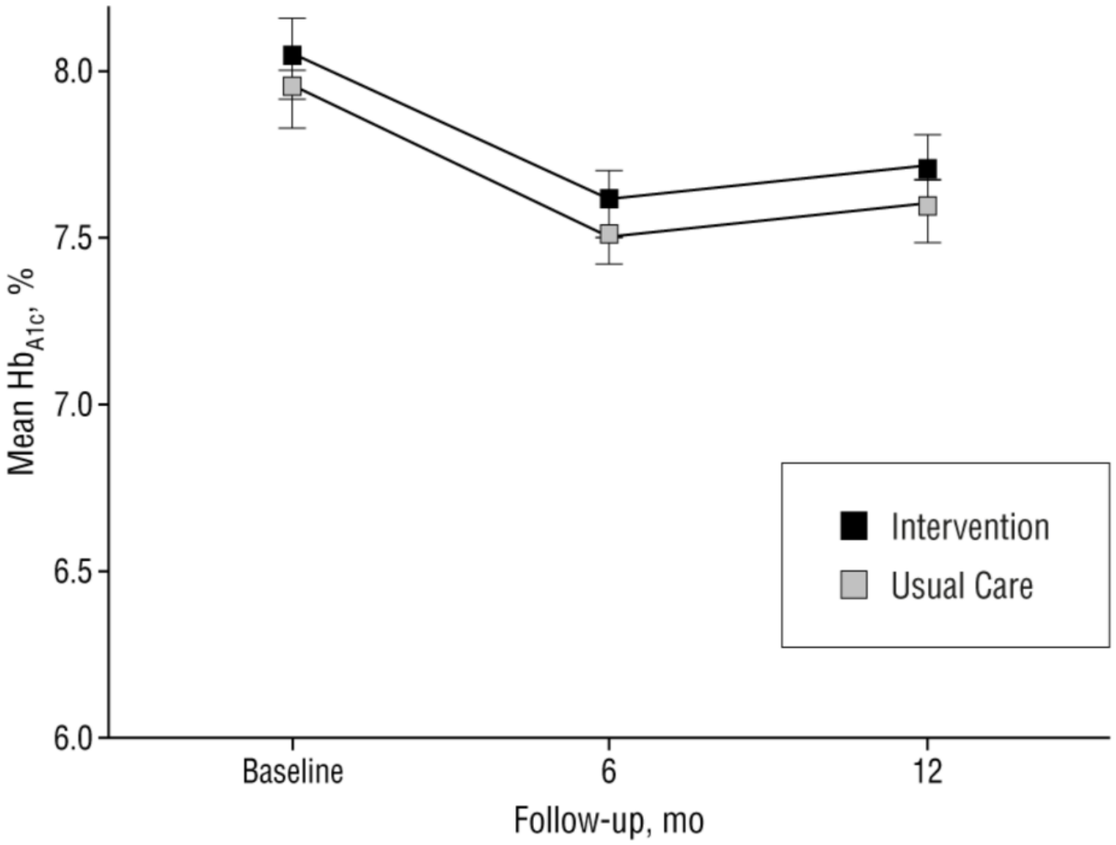


p=.005; effect size 0.42


Cardiac Readmission Cumulative Incidence
0.00
0.25
0.50
0.75
1.00
0
50
100
150
200
days
Usual Care
Collaborative Care

Pathways Study

- RCT (N=329) of standard CC in primary care for patients with diabetes + comorbid MDD and/or dysthymia
- Collaborative care, compared to treatment as usual, was associated with:
  - Less depression severity over time (P =.004)
  - Higher patient-rated global improvement at 6 months
  - Greater care satisfaction at 6 and 12 months
- No differences in HbA1c



Katon 2009

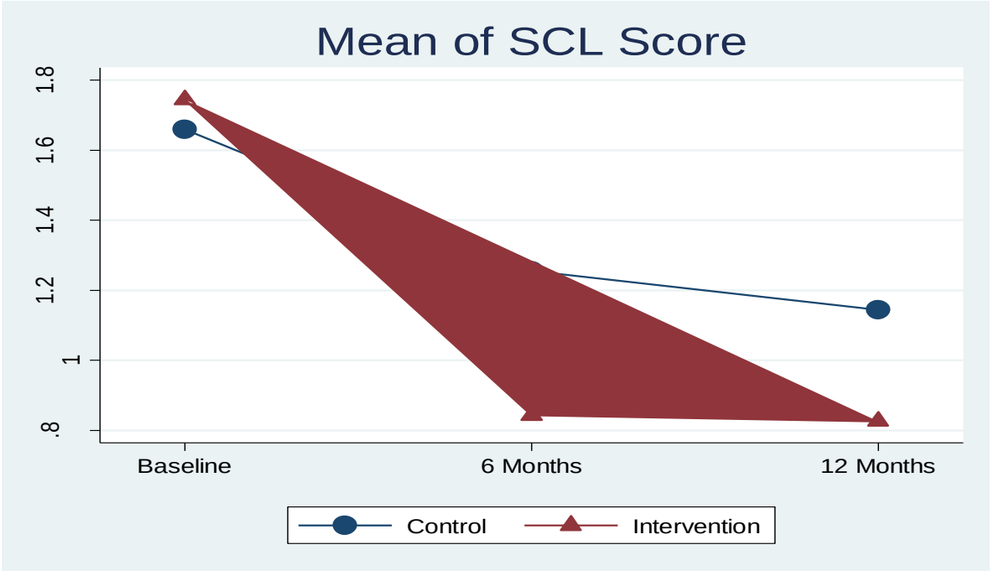
MGH Cardiac Psychiatry Research Program

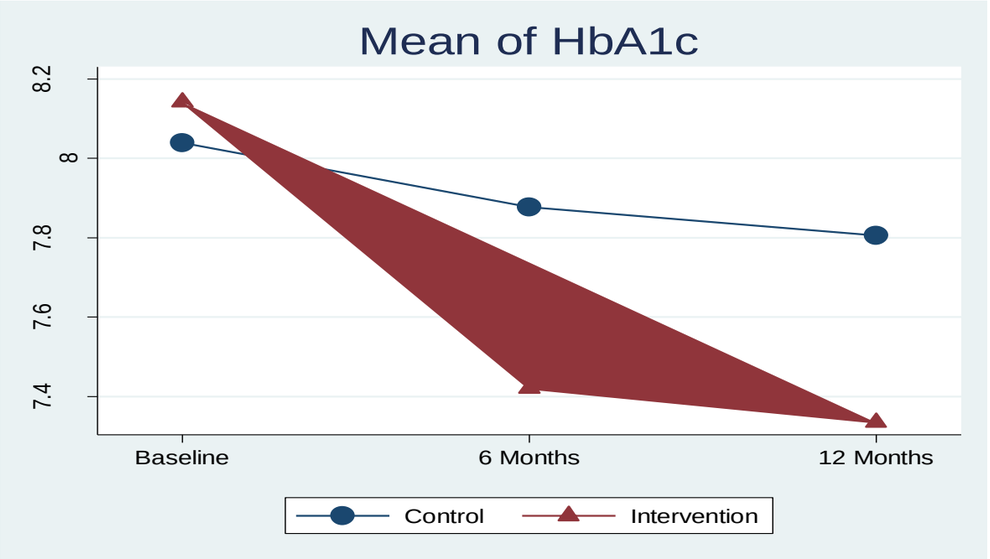
TEAMCare: Blended Care

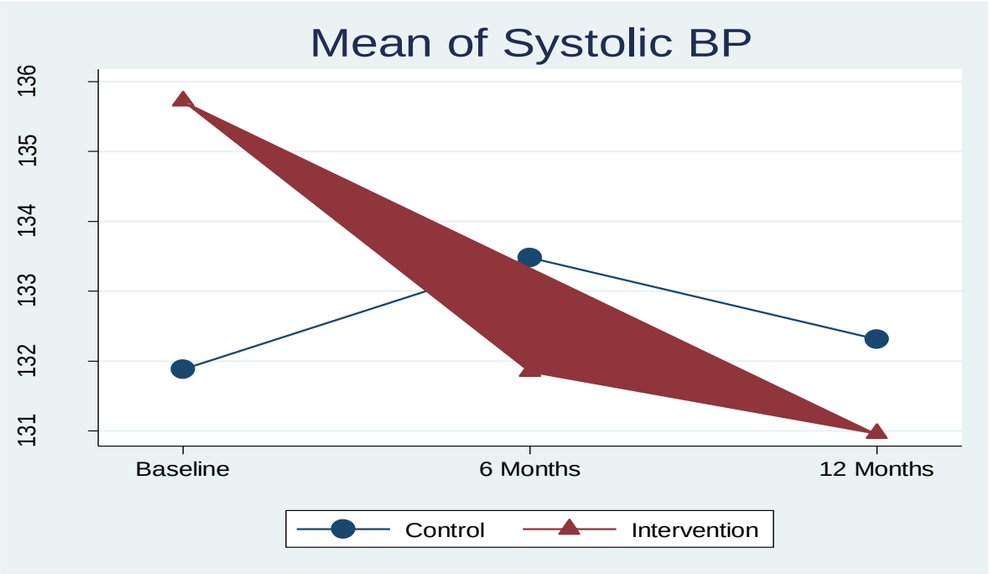
- RCT (N=214) of a blended care intervention versus usual care for patients with poorly controlled diabetes, CHD, or both, and coexisting depression
  - Blended care: a medically supervised nurse, working with each patient's PCP, provided guideline-based care management
- Treat-to-target focus on depression, medication adherence, and self-care
  - Visits were in person and phone; supervision by psychiatrist AND diabetologist/cardiologist
  - Specific parameters included SCL-20, A1C, SBP, lipid levels

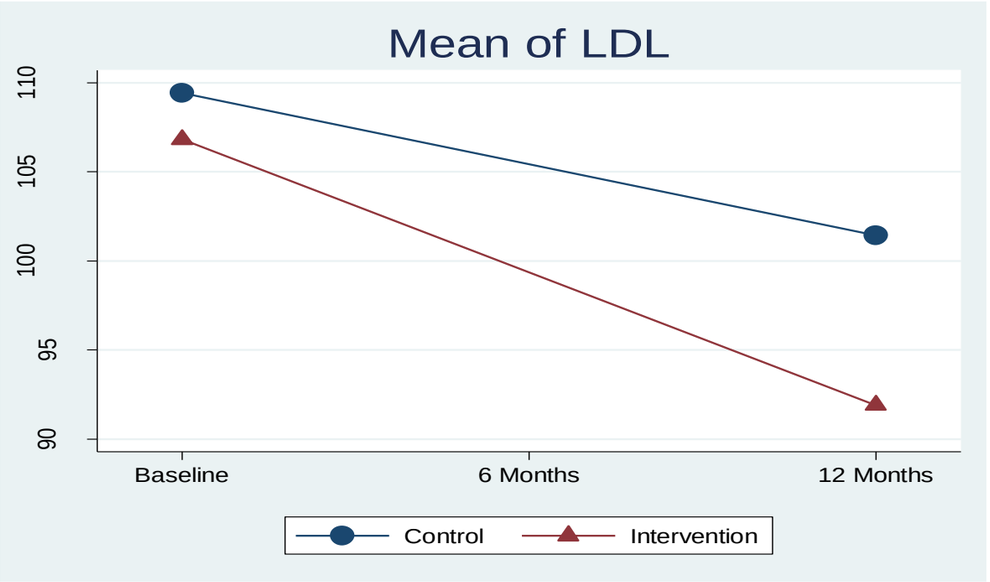
TEAMcare™

Katon 2009









Katon 2009

TEAMcare

Implementation: COMPASS

- **COMPASS (Care Of Mental, Physical, And Substance use Syndromes)**
  - 3609 patients in 18 health centers and 172 clinics in 8 states for patients with poorly controlled DM and/or CHD and co-existing depression
  - Goals: depression response in 40%, improved diabetes & BP control in 20%
  - Over a mean 11 month period, met goals for depression response (40%), glucose control (23%), and BP control (58%)
  - 56% were “very satisfied” with COMPASS care, and patients had significant improvements in depression care satisfaction ratings
  - Variability across sites was quite substantial

Rossom 2017, Coleman 2017

Novel Implementation Tools

- eHealth: Computerized CBT (cCBT)—mixed results thus far
  - Large REEACT pragmatic trial negative w/poor engagement
  - F/u trial: Phone support improved engagement and sped recovery
  - cCBT both alone and in combination with Internet support groups (N=704): more effective for anxiety and depression than usual primary care
- mHealth
  - Text message interventions studied in patients with depression
  - Mobile apps increasingly used by public for mood/behavior change
- Virtual video sessions being used to manage mental health conditions in a wide variety of clinical settings

Agyapong 2016; Arain 2015; Littlewood 2015, Rollman 2016, Gilbody 2017; Lam 2017

Beyond Disorders:
Tools for cardiac health in those without psychiatric conditions

Coping Skills Training

- Coping Skills Training (CST) in HF
  - 16 week trial: CST (16 weekly calls) vs. HF education
    - Individually tailored cognitive behavioral techniques to enhance coping
    - Motivational interviewing (MI) approach to enhance adherence to prescribed medical therapies
- Results: CST was associated with greater improvements in
  - HRQoL (p=.009)
  - Depressive sx (p=.027)
  - Function (6 min walk test; p=.012)
  - No differences in biomarkers or hospitalizations/death (3 year f/u)

Sherwood 2017; Blumenthal 2016

Stress Management

- Stress Management Training (SMT) in cardiac rehabilitation (CR)
  - 151 pts with CHD in CR or CR + SMT (plus no-CR controls)
  - SMT combined education, group support, and CBT
  - Both CR groups achieved significant, and comparable, improvements in CHD biomarkers
  - Participants in the CR+SMT group exhibited lower rates of clinical events compared with those in the CR-alone group (18% versus 33%; HR=.49; P=0.03)

Blumenthal 2016

Mindfulness-Based Stress Reduction (MBSR)

- 8 week workshop taught by certified trainers
- Weekly group meetings (2 hr), one-day retreat (mindfulness practice), homework (45 mins daily)
- Instruction in three formal techniques:
  - mindfulness meditation
  - body scanning
  - simple yoga postures

Kabat-Zinn 1982, 2017

MBSR

- Momeni: MBSR vs. TAU in 60 CHD patients (Iran)
  - MBSR in eight 2.5-hour sessions vs. usual care
  - MBSR has significantly greater improvements in perceived stress, anger and systolic BP ($P < .001$) but not diastolic BP
- Parswani MBSR vs. TAU in 30 men with CHD (Bangalore)
  - MBSR in 8 weekly sessions vs. 1 health education session
  - MBSR at 8 weeks associated with lesser anxiety/depression, perceived stress, or and lower systolic BP; no differences in BMI

Parswani 2013; Momeni 2016

Positive Psychological Constructs

- Links between positive constructs and health outcomes
  - Optimism: Rasmussen meta-analysis (N=83 studies)
  - Positive Affect (interest, enthusiasm, vitality): NHANES I
  - Positive Psychological Well-being: Chida meta-analysis (N=50,000)
- Positive psychological constructs in patients with heart disease
  - 77 analyses from 30 studies (N=14,624)
  - 65% of all adjusted analyses found significant associations between positive constructs and subsequent health outcomes
  - Meta-analysis: positive constructs were associated with lower rates of rehospitalization or mortality in adjusted analyses (OR =.89; p<.001)

DuBois 2015; Chida 2010; Kubzansky 2007; Rasmussen 2009

Positive Psychological Interventions

- Deliberate activities focused on gratitude, altruism, optimism, strengths, success
- Designed to promote psychological well-being
- Linked to improvement in positive affect/well-being (and reductions in depression) in studies of over 6000 persons
- Very easy to complete, well-accepted, little provider training required

Seligman 2006; Sin 2011; Bolier 2013; Moskowitz 2017

Development of PP Interventions in Medical Patients

- **Exercises**
  - Week 1: Gratitude for Positive Events
  - Week 2: Personal Strengths
  - Week 3: Gratitude Letter
  - Week 4: Enjoyable and Meaningful Activities
  - Week 5: Remembering Past Success
  - Week 6: Acts of Kindness
  - Weeks 7 & 8: Participant Choice

Positive Psychology for Healthy Recovery

J Happiness Studies, 2015

MGH Cardiac Psychiatry Research Program

The BEHOLD Study

A Massachusetts General Hospital Research Study

Treatment Manual

Introduction

With my diabetes and other conditions, will these exercises really help?

We do not want to gloss over or ignore the effects that diabetes (or other medical problems) have had on your life, or how difficult it can be to follow all of the recommendations made by your doctors. We know that your treatment team may be asking you to make a lot of changes in your life, and getting more active is not easy!

However, we know that people with more positive emotions exercise more, and that people who get specific help with getting and staying active have the best success. So we think that combining the positive psychology program (to improve your outlook and your ability to use your greatest personal strengths) with a specific goal-setting program (to help you set and reach your own physical activity goals), will have a great chance of helping you.

How will the program work?

Each week, you will get a new positive psychology exercise from your study trainer. You will complete the exercise during the next week and write about it. You will discuss how it went with your trainer and how you can use those skills in your daily life. Each week you will also discuss a specific physical activity goal (like walking) with your trainer and will also discuss tips to help you reach those goals, like using resources in your community or finding new walking routes. The program takes 12 weeks to complete, and you can also receive optional "booster" text messages for the next 12 weeks that focus on helping you stay motivated and confident.

By the end of the study, we hope that you will:

- ❑ Be more aware of positive events in your life.
- ❑ Be more able to use your personal strengths and qualities to accomplish goals and feel good about yourself.
- ❑ Learn simple but powerful new skills that you can use in your daily life to increase your positive thoughts and feelings.
- ❑ Be able to regularly use these skills to develop a habit of happiness.
- ❑ Find it easier to make healthy lifestyle choices because you are feeling more positive.
- ❑ Learn how to set realistic, specific physical activity goals.
- ❑ Develop skills to overcome barriers and challenges in getting and staying active
- ❑ Sit less, move more, feel better, and thrive!

Tips for Success—Positive Psychology

1. Focus on the present and be nonjudgmental.

During some of these exercises, it may be easy to have negative or anxious thoughts creep in. This is completely natural! An important skill is to **return your focus to the moment** and to the positive exercise that you are completing. If you notice yourself "heading negative," it can be very helpful to nonjudgmentally "turn your mind" back to the moment and the exercise.

2. Try something new.

When performing these exercises, thinking about or doing something **out of the ordinary** can be more powerful than something routine. For example, if you write a letter of gratitude, you may get more out of it by thanking someone you have not thanked before. Doing something **new** and **different** can give you a burst of positive feeling and feel more deeply meaningful.

3. Name positive emotions.

We will help you **develop a greater vocabulary** for positive emotions. Instead of just feeling "good," we think that understanding and labeling your good feelings more specifically (like "satisfaction" or "joy" or "pride") will allow you to more fully recognize and savor the positive events and feelings in your life.

4. Develop new skills.

Over the course of this study, we will help you **develop useful skills**, such as becoming more aware of positive things in your life, expressing gratitude more regularly, or identifying new ways to use your strengths. You will use these skills as part of the study exercises, and we hope that you will be able to start using these skills in your everyday life too. You can also make a list (see the Appendix) of **My Favorite Skills** and how you will use them.

5. Be willing to give them a try!

You still may feel skeptical. **Give the exercises a try!** You may surprise yourself by getting more of a boost than you expected. It will also help to hear what worked or did not work for you, so we can continue to refine the program so it is most effective for people like you.

6. Consider how to use your new skills in daily life.

We hope that feeling **happier**, more **confident**, and more **optimistic** will give you the boost you need to get more active. As stated, the research shows that people who experience more positive feelings exercise more and have better health. We encourage you to **see if your positive feelings help you feel more motivated** to get and stay active, and to do an even better job managing your diabetes.

Expressing Gratitude

Instructions

Please take some time to think back over the past several years of your life and remember an instance when someone did something for you for which you are very grateful. For example, think of the people who have been especially kind to you but have never heard you fully express your gratitude. This can include parents, children, spouses/partners, relatives, friends, neighbors, teachers, doctors/nurses, employers, and so on. It can be something related to your diabetes or entirely separate.

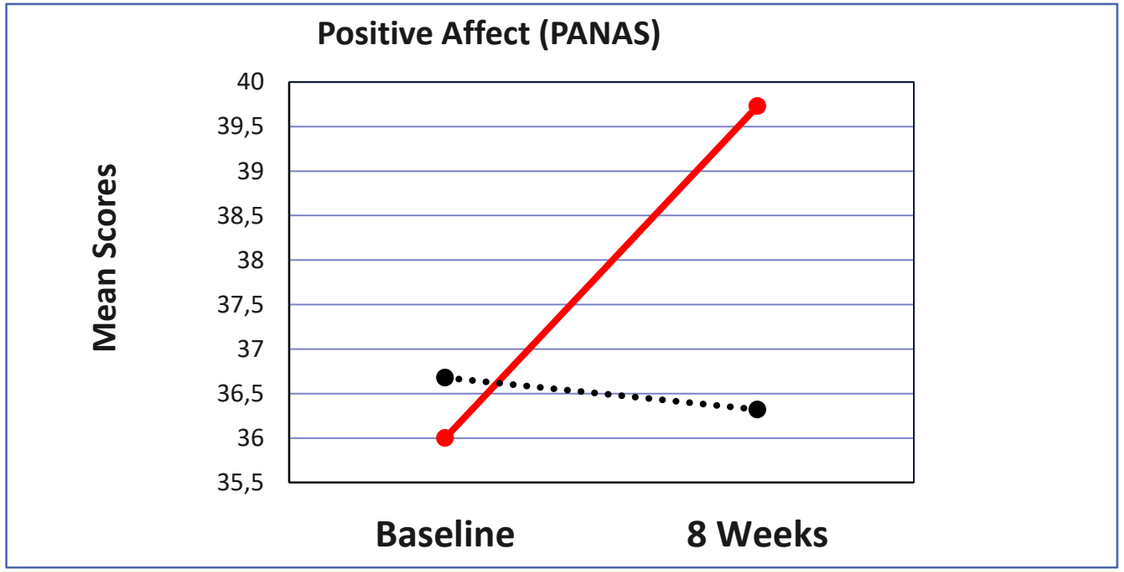
Next, please write a gratitude letter to one of these individuals, using the following instructions as a guide:

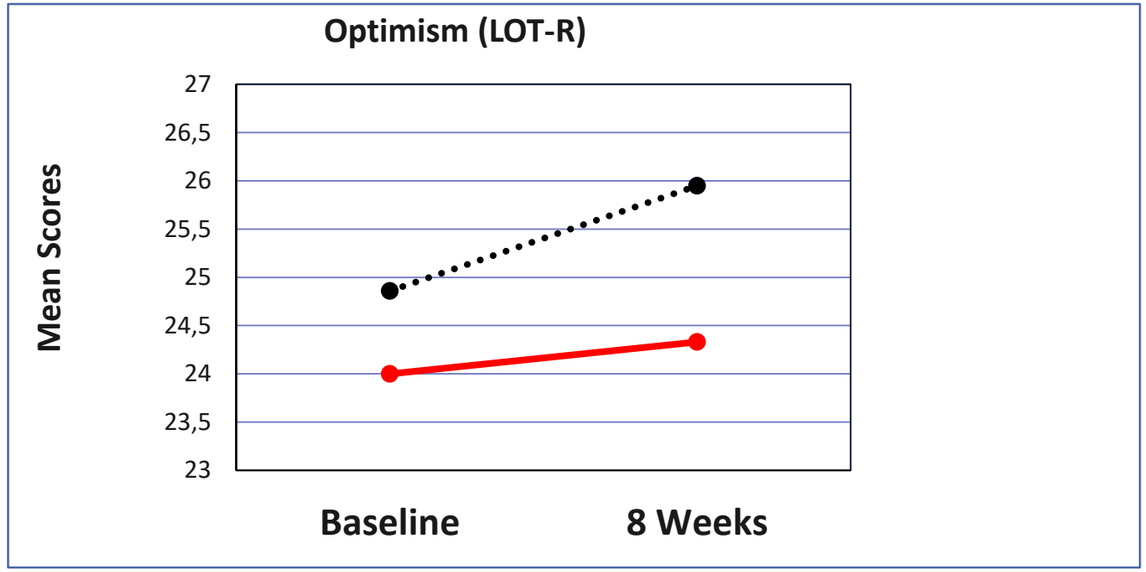
Writing Your Gratitude Letter:

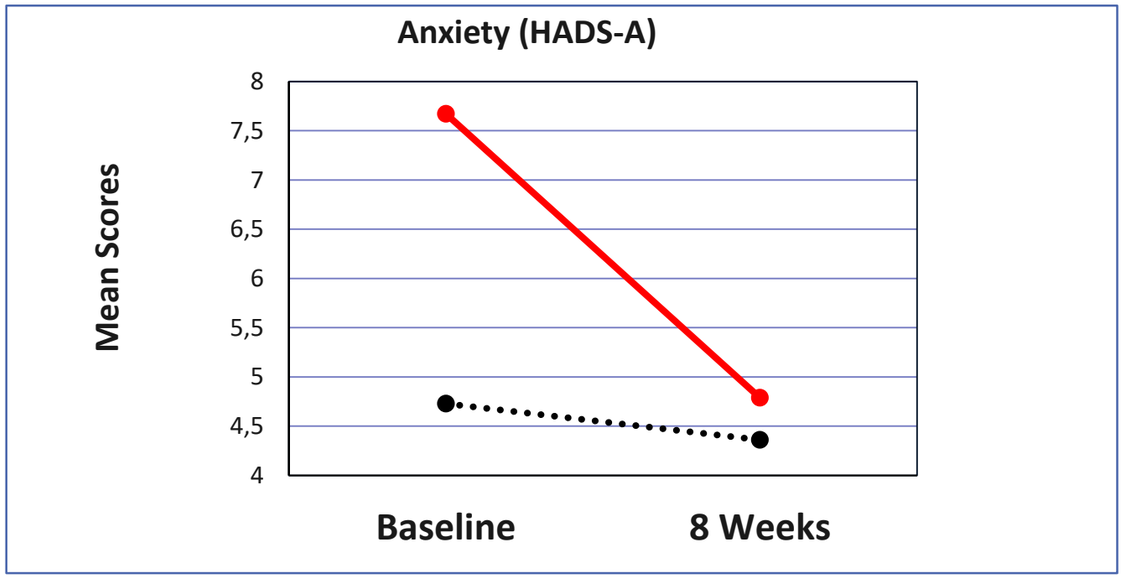
- ❑ Use whatever format you like, but remember to write as though you are directly addressing the person to whom you are grateful. It is often helpful to start the letter with "Dear ____," and end with "Sincerely, ____."
- ❑ Do not worry about perfect grammar and spelling.
- ❑ Describe in specific terms why you are grateful to this person and how the person's behavior affected your life. Focus on the specific parts of the behavior that most affected you and the details about how this affected you afterwards.
- ❑ Describe what's going on in your life now and how often you remember their efforts.
- ❑ You are welcome to show or give this letter to anyone you please. People have found that they can get even bigger boosts of good feeling when they share the letter with the recipient. On the other hand, the letter you write is a private document in which you can express your gratitude freely, and you do not have to share any of it with another person if you do not want to.
- ❑ Write the letter on the next page. When you next speak with your study trainer, you will review the letter (sharing only as much of the letter as feels comfortable). You will also discuss how you felt during and after writing the letter.

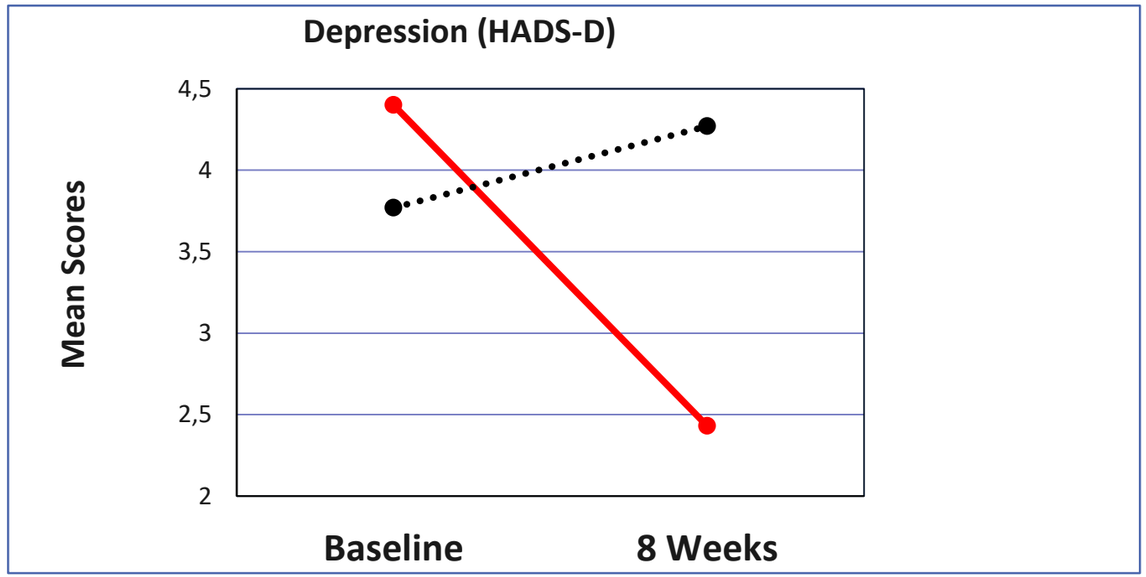
When preparing for this exercise, **it may be most helpful to select a person or act that you haven't thought about for a while**—something that isn't always on your mind. Or if you do choose a person to whom you often feel grateful, it can be helpful to think about a different act (or aspect of the act) than the ones for which you usually feel thankful or express gratitude. It may be more helpful to bring these events out of the "back" of your mind than to select something that you often think about.

Pilot Study of a PP Intervention in Patients with an Acute Coronary Syndrome









Intervention

Treatment as Usual

J Happiness Stud, 2015

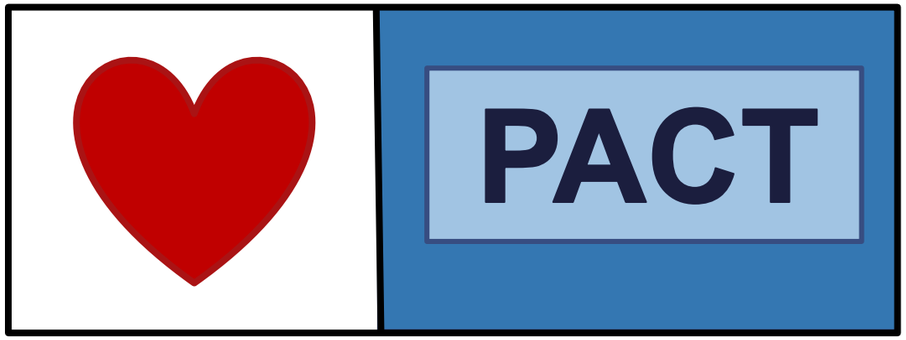
PP studies in heart disease

- Factorial design trial to examine components (N=128)
  - PP alone or with motivational interviewing; boosters and daily exercises in some
- Across all participants
  - Health behavior adherence (MOS) improved (effect size ~1.3)
  - Exercise increased (MOS; effect size ~.8)
  - Positive affect increased (PANAS; effect size ~.6)
  - Depression and anxiety decreased (HADS; effect sizes ~.4-.6)
- Also used in other populations: HF, DM, HIV

Clinical Trials, 2017; Moskowitz 2017

Promoting Activity in Cardiac Patients via Text Messages

The PACT Study

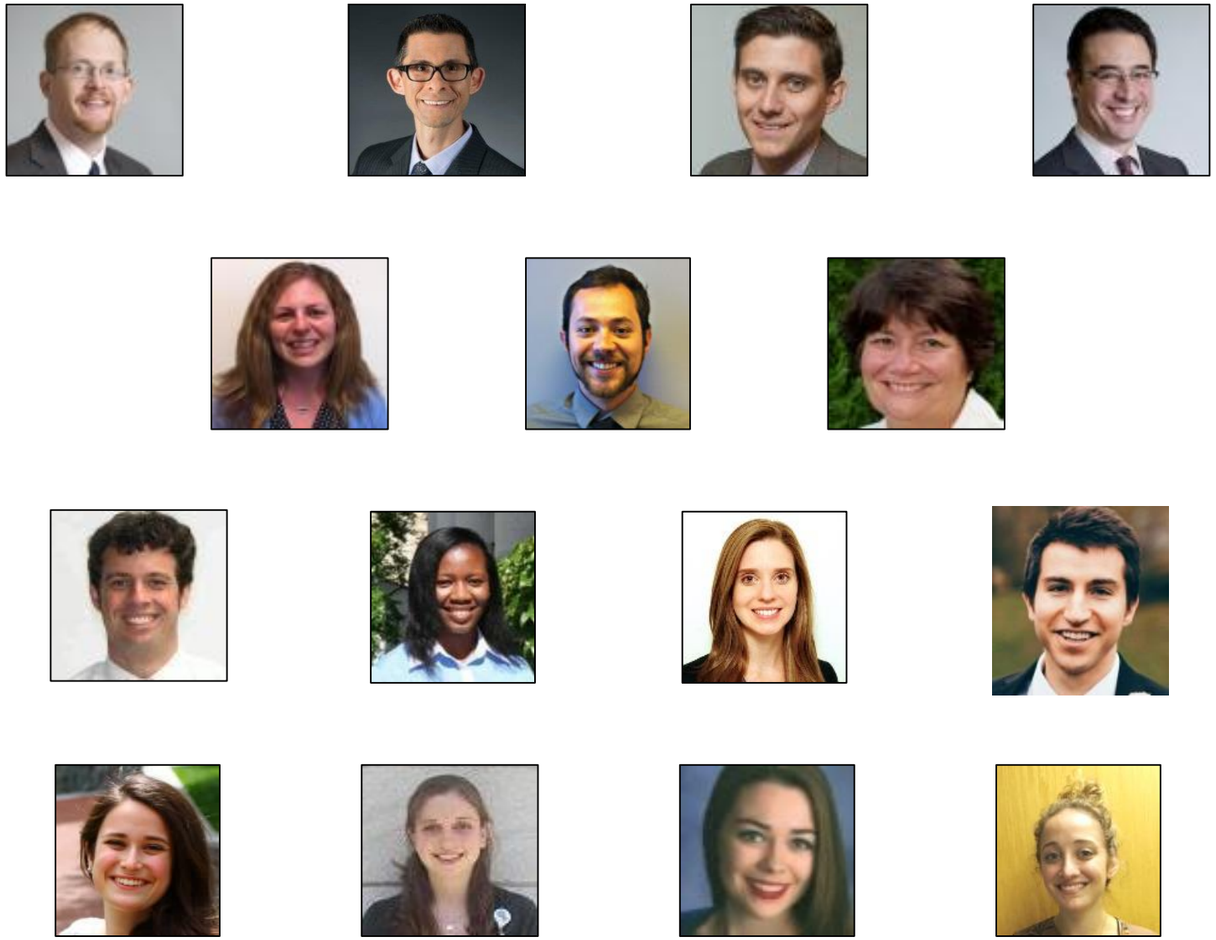


MGH Cardiac Psychiatry Research Program

Summary

- **Collaborative care works in cardiac patients**
  - Blended care may be especially promising
  - Implementation challenging but feasible
  - Novel tools/modalities may extend reach
- **New interventions to address all cardiac patients**
  - May help to improve well-being, increase participation in health behaviors and boost overall outcomes
  - CST, SMT, MBSR, and PP all have promise
  - Novel delivery could also work well for these interventions

Thank You!



MGH Cardiac Psychiatry Research Program