

Successful Dietary Changes in a
Cardiovascular Risk Reduction
Intervention Are Differentially Predicted
by Biopsychosocial Characteristics

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Stress, Emotions & Eating Behavior

- Lab Studies of Induced Stress Tasks
 - “Emotional eaters” – more sweet high-fat foods (Oliver, Wardle & Gibson, 2000).
 - Negative mood – ate more food, greater preference for sweet foods (Epel, Lapidus, McEwen, & Brownell, 2001).

Stress, Emotions & Eating Behavior

- Studies of Self-Reported Stress & Distress
 - Perceived stress and negative emotions associated with greater intake of:
 - Carbohydrates (Spillman, 1990)
 - Fast food (Steptoe, Lipsey, & Wardle, 1998)
 - Snacks (Conner, Fitter, & Fletcher, 1999; Oliver & Wardle, 1999)
 - Saturated fats and sugar (Wardle, Steptoe, Oliver, Lipsey, 2000)

Study Project Sites

- **General Electric Corporation, San Jose, CA, 1996-97**
 - High-risk employees, retirees, and retiree spouses from a worksite setting (N=287)
- **Santa Clara County Individual Practice Association, 1997-98**
 - High-risk patients of selected primary care MDs in an Individual Practice Association (N=198)
- **San Mateo County Government, 1997-2000**
 - High-risk employees, retirees, and their spouses/partners from a multisite, diverse work setting (N=255)

HEAR²T Program

- Provided a systematic approach to the comprehensive and individualized management of cardiovascular risk status for a clinical CVD event.
- Employed a physician-directed, team case-managed model (nurse and dietitian) that combined intensive behavioral risk factor control and use of medications.
- Program approach based on the social cognitive theory of behavior change (Bandura).

Purpose of Study

- To evaluate the role of psychosocial distress on change in eating behavior for participants in a cardiovascular risk factor reduction program.

Study Sample Description (N=740)

- Gender: 63% male, 37% female
- Age: 57.7 years, s.d.=11.1, range: 27-88
- BMI: 29.2 kg/m², s.d.=5.5, range: 18-50
- Smoking Status:
 - Never smoked 48%
 - Past smoker, quit 43%
 - Current smoker 9%

Signal Detection Analysis

- Method designed to discover characteristics that best predict a binary outcome such as:
 - Medical test evaluation
 - Risk factor evaluation
 - Evaluation of treatment moderators
- Exploratory analyses, no a priori hypotheses.
- Identifies **optimal** cut-points for predictors.

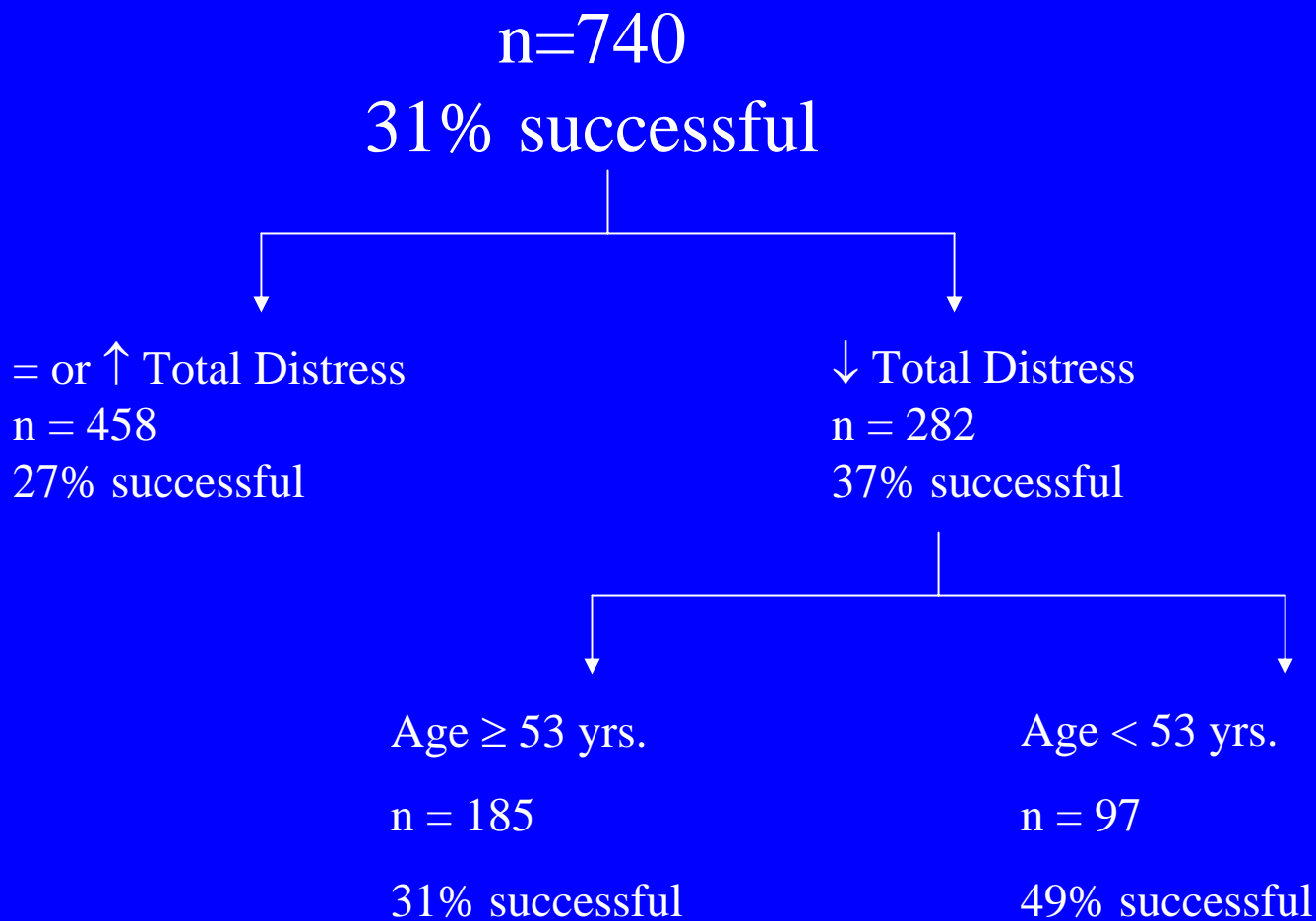
Signal Detection Analysis

- Signal detection methods divided sample into subgroups using the following predictor variables:
 - Gender
 - Site
 - Age
 - Medical history
 - Smoking status
 - BMI
 - 14 psychosocial distress items
 - 4 psychosocial distress factors
 - Total distress score

Indicators of Success (Outcomes)

- Decreased high-fat snack intake at 12 months
 - How many times per week do you eat high-fat snacks, chips, or fried foods? (0, 1-2, 3-5, 6+)
- Increased fruit/vegetable intake at 12 months.
 - How many servings of fruits and vegetables do you eat per day? (0, 1-2, 3-5, 6+ servings)

Results: Decreased High-Fat Food Intake



All analyses significant at $p < 0.01$.



Results: Decreased High-Fat Food Intake (cont.)

If Age < 53 yrs.

n = 97

49% successful

Often/Always Worried at Baseline

n = 36

28% successful

Never/Sometimes Worried at Baseline

n = 61

61% successful

BMI \geq 29

n = 16

6 % successful

BMI < 29

n = 20

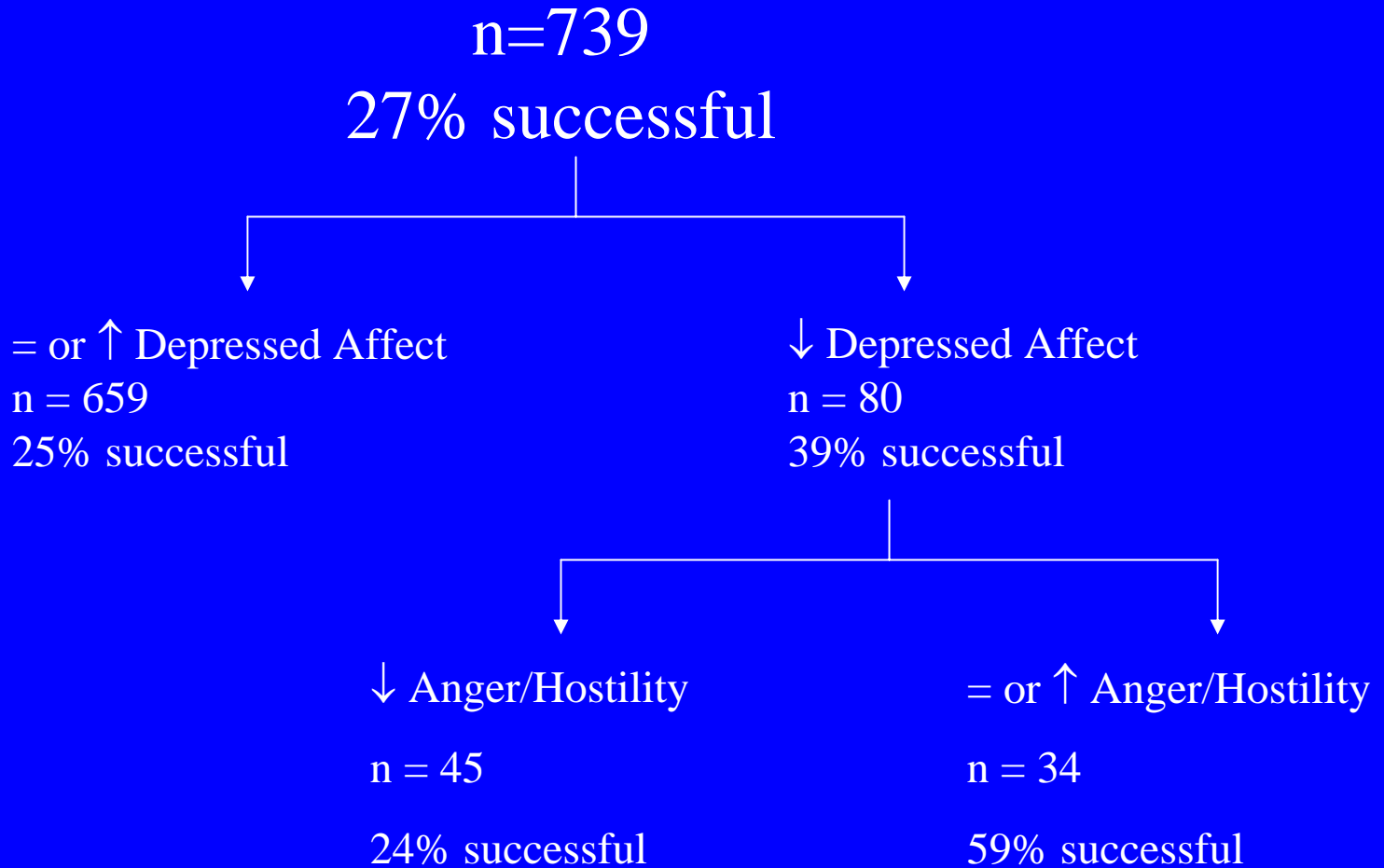
45 % successful

All analyses significant at $p < 0.01$.

Decreased High-Fat Food Intake

- Group with greatest success (61%):
 - Decreased distress
 - Younger age
 - Less worry at baseline
- Group with least success (6%):
 - Decreased distress
 - Younger age
 - More worry at baseline
 - BMI ≥ 29

Results: Increased Fruit/Vegetable Intake



All analyses significant at $p < 0.01$.

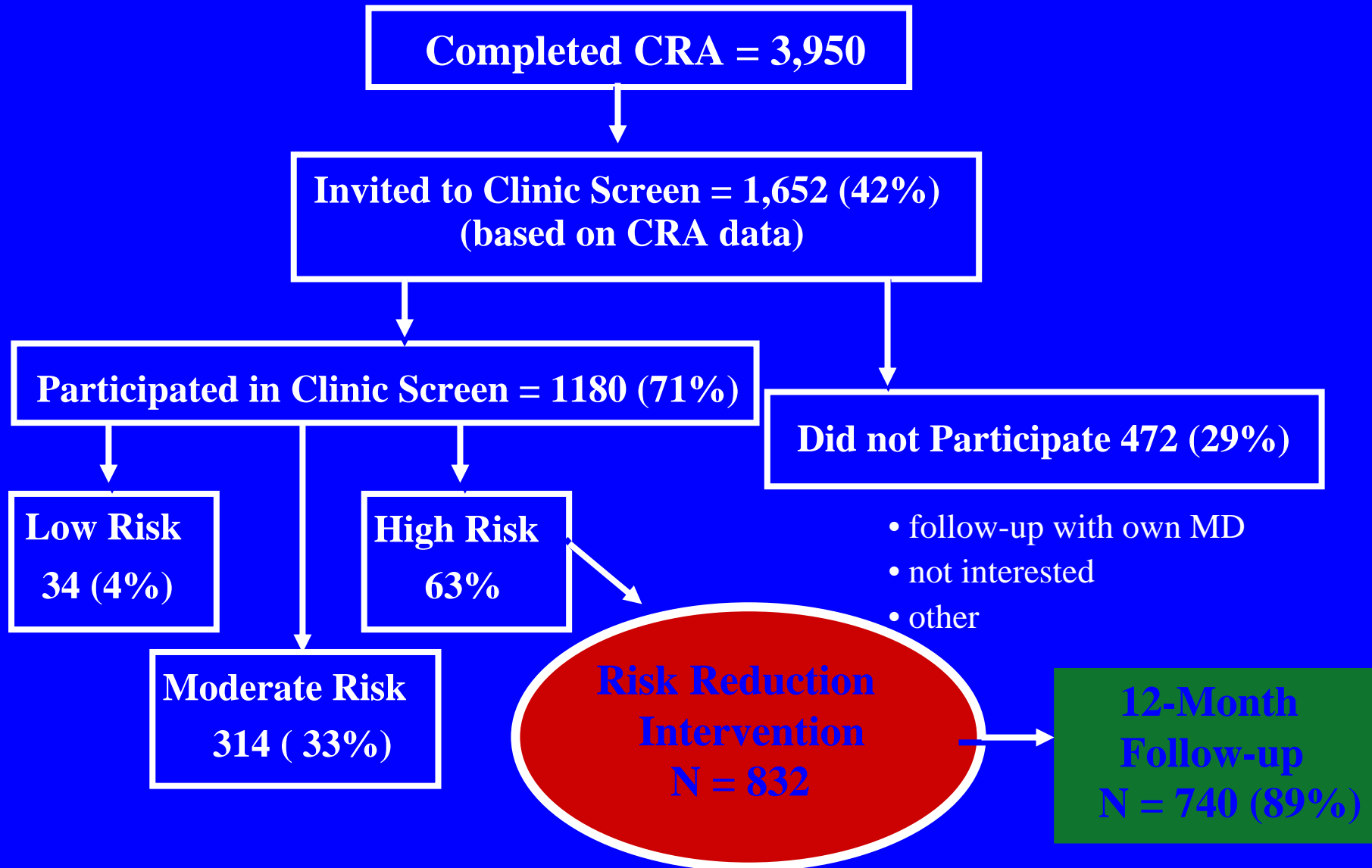
Summary of Results

- Decrease in total distress related to decreased high-fat snack intake
 - Additional findings for younger age, lower worry, lower BMI
- Decrease in depressed affect related to increased fruit/vegetable intake.

Future Directions

- These findings have demonstrated associations between eating behavior and psychosocial distress (i.e., worry, depressed affect).
- Further exploration to discern direction of relationships is an important “next step.”
- Relevant biopsychosocial characteristics might be important to consider in risk reduction interventions.

Study Sample Recruitment



Psychosocial Distress Items

1. I have little interest or pleasure in doing things.
2. I feel down, depressed, or hopeless.
3. I feel nervous, anxious, or on edge.
4. I worry about a lot of different things.
5. I have anxiety attacks (sudden feeling of fear or panic).
6. I have feelings of anger or hostility.
7. It seems I am competing with everyone.
8. There never seems to be enough time to get my work done.
9. I get into arguments.
10. I become annoyed or irritated.
11. I get angry, but hide or suppress my anger.
12. I become angry and lose my temper.
13. I do not have a lot of say about what happens on my job.
14. My job is very hectic.

Psychosocial Factors

- Factor 1: Anger/Hostility
 - Lose temper, arguments, anger, annoyed
- Factor 2: Anxiety
 - Anxiety, nervous, worry
- Factor 3: Type A
 - No time, competing, suppress
- Factor 4: Depressed Affect
 - Decreased pleasure, depressed

Intervention

- Evaluation and risk stratification (2-stage process)
- Design an individualized comprehensive program
- Participant monitoring and tracking
- Establish program and participant outcomes (report card)
- Individual counseling by a nurse and dietitian for 12 months
- Emphasis on lifestyle change
- Referral to existing resources and programs