

Thursday, September 14, 2018

BREAKTHROUGHS IN  
**POPULATION HEALTH**  
AND MULTIPLE  
BEHAVIOR CHANGE

WELCOME



URI WELL-BEING CONFERENCE

THE  
**UNIVERSITY**  
OF RHODE ISLAND



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# More Effective and Inclusive Care by Combining Practices for Individual Patients and Entire Populations

**September 14, 2018**

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Cancer Prevention Research Center

University of Rhode Island

Founder Pro-Change Behavior Systems, Inc.

# Goal:

To impact the health and well-being of individual patients and entire populations and reduce costs related to health care, disability and lost productivity.

# What are the Five Behaviors that account for the majority of Chronic Diseases, Disabilities, Lost Productivity and Premature Deaths?

- ❖ Smoking
- ❖ Alcohol Abuse
- ❖ Unhealthy Eaters
- ❖ Inadequate Exercise
- ❖ Stress

# Why are these Behaviors so Critical for Health?

They represent Fundamental Functions of Life

❖ Breathing

❖ Drinking

❖ Eating

❖ Moving

❖ Feeling

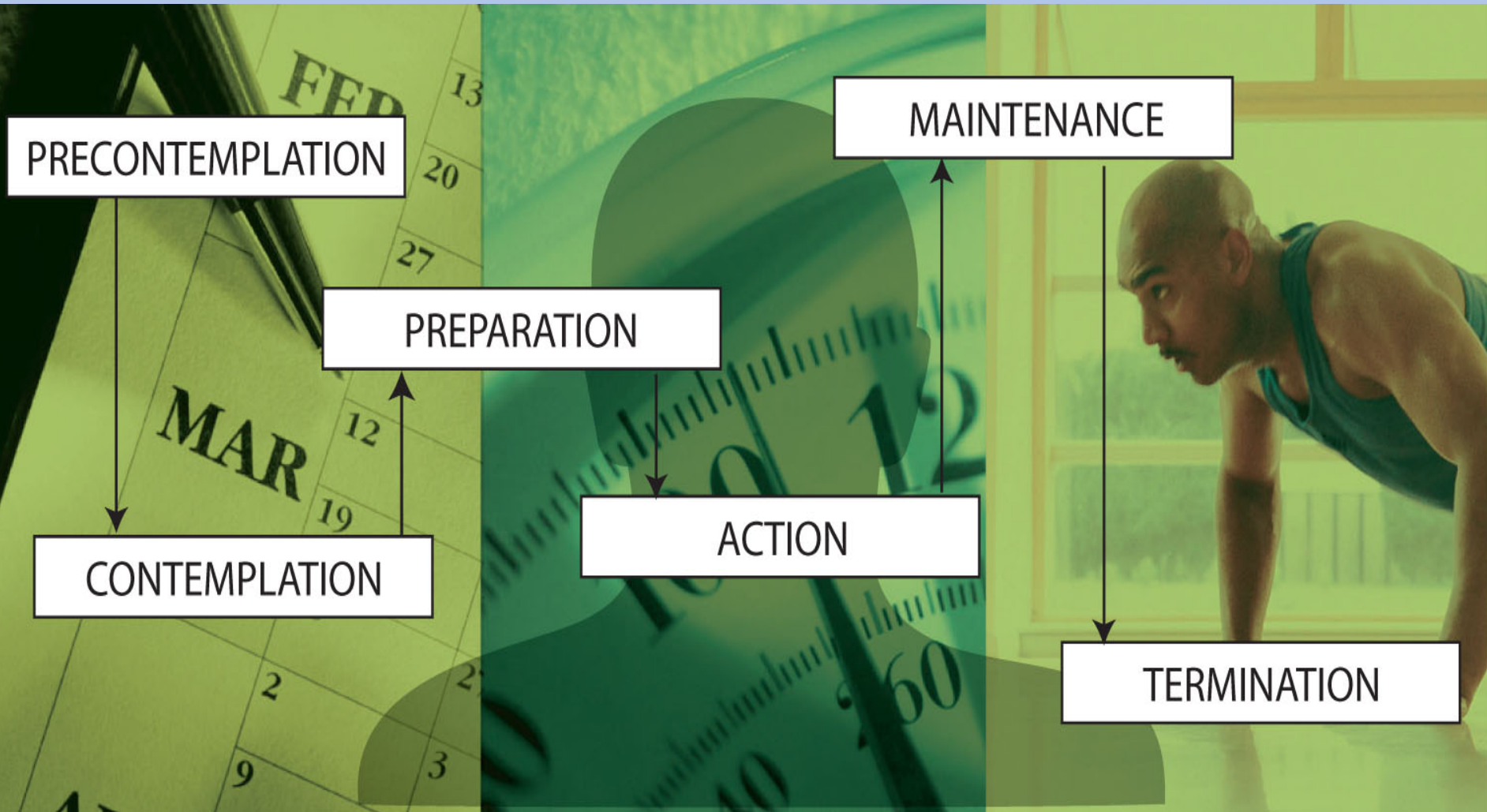
# Inclusive Care from Two Clusters of Paradigms for Individuals and Entire Populations

**Individual Health      Complemented by      Population Health**

1. Individual Patients

1. Entire Populations

# Stages of Change



# Inclusive Care from Two Clusters of Paradigms for Individuals and Entire Populations

**Individual Health      Complemented by      Population Health**

1. Individual Patients
2. Action Oriented

1. Entire Populations
2. Stage-based



# Engagement and Intervention Issues

1. Reach
2. Retention
3. Progress
4. Process
5. Success

# Inclusive Care from Two Clusters of Paradigms for Individuals and Entire Populations

**Patient Health      Complemented by      Population Health**

1. Individual Patients
2. Action Oriented
3. Reactive

1. Entire Populations
2. Stage-based
3. Proactive

# Inclusive Care from Two Clusters of Paradigms for Individuals and Entire Populations

**Patient Health      Complemented by      Population Health**

1. Individual Patients
2. Action Oriented
3. Reactive
4. More Selective

1. Entire Populations
2. Stage-based
3. Proactive
4. More Inclusive

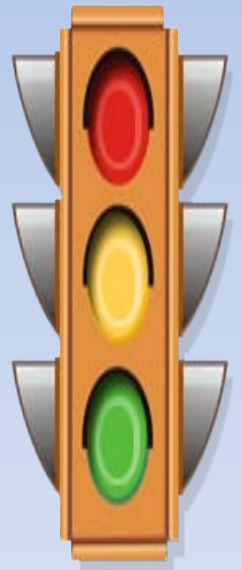
# Proactive Engagement

- Proactive Engagement
- Communication Campaign
- Incentives

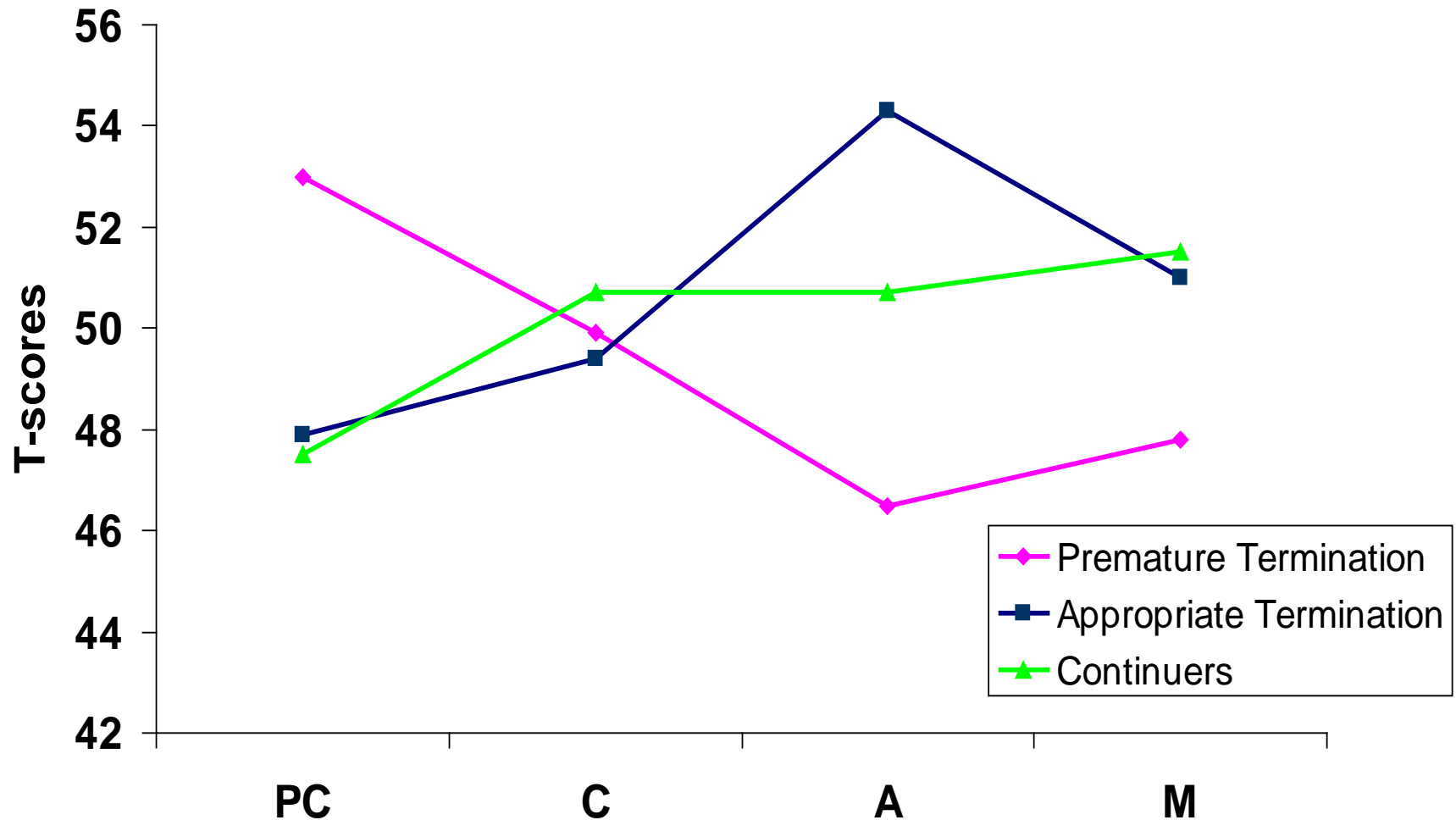
Programs have to communicate that they are tailored to needs of each patient:

1. Traffic light: Red light not ready; Yellow light getting ready; Green light ready.

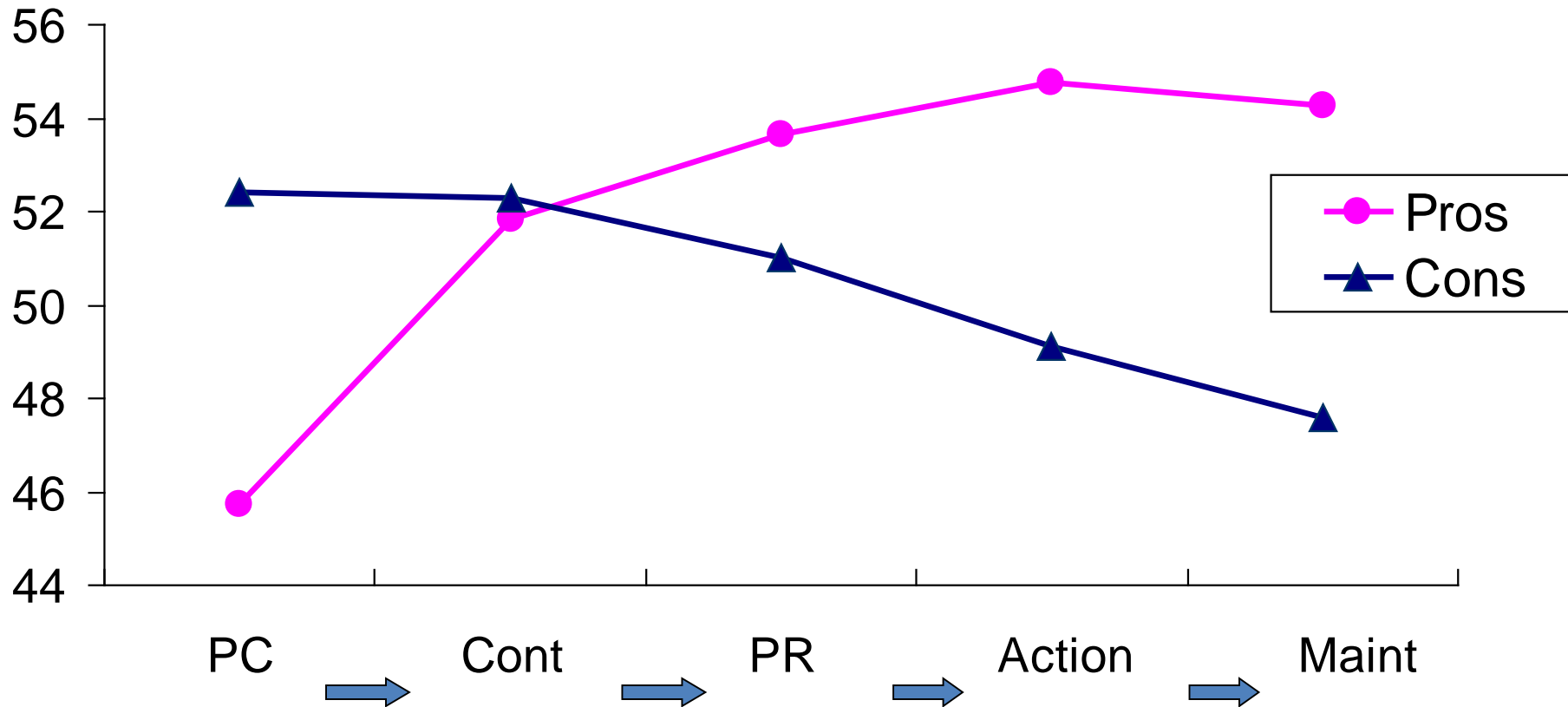
2. Wherever you are at, we can work with that! .<sup>TM</sup>



# Stage Profiles of Completers and Dropouts of Psychotherapy



# Stage Transitions



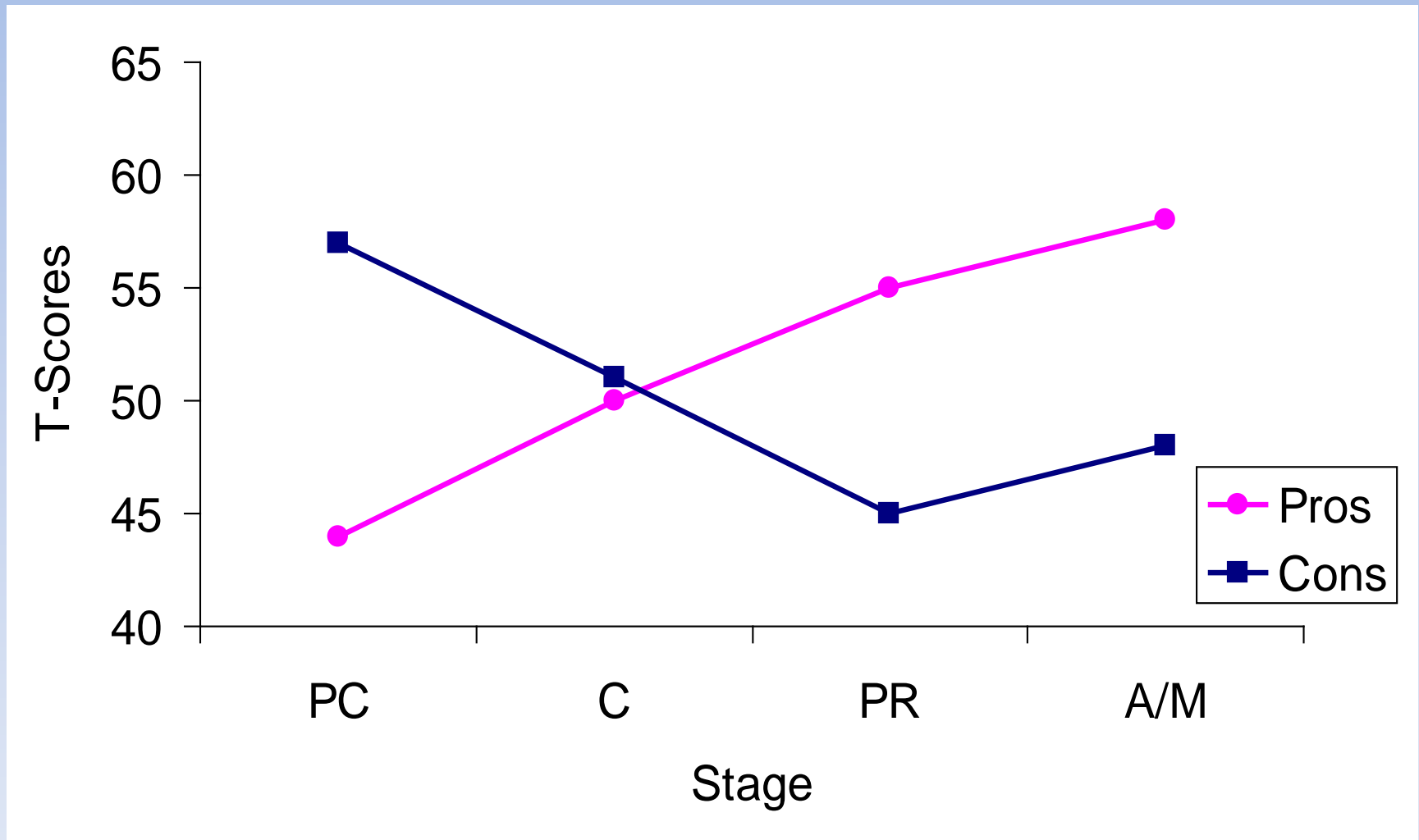
The pros and cons of changing across stages of change for 48 behaviors

When social controls are used, programs have to help transform social controls into self controls.

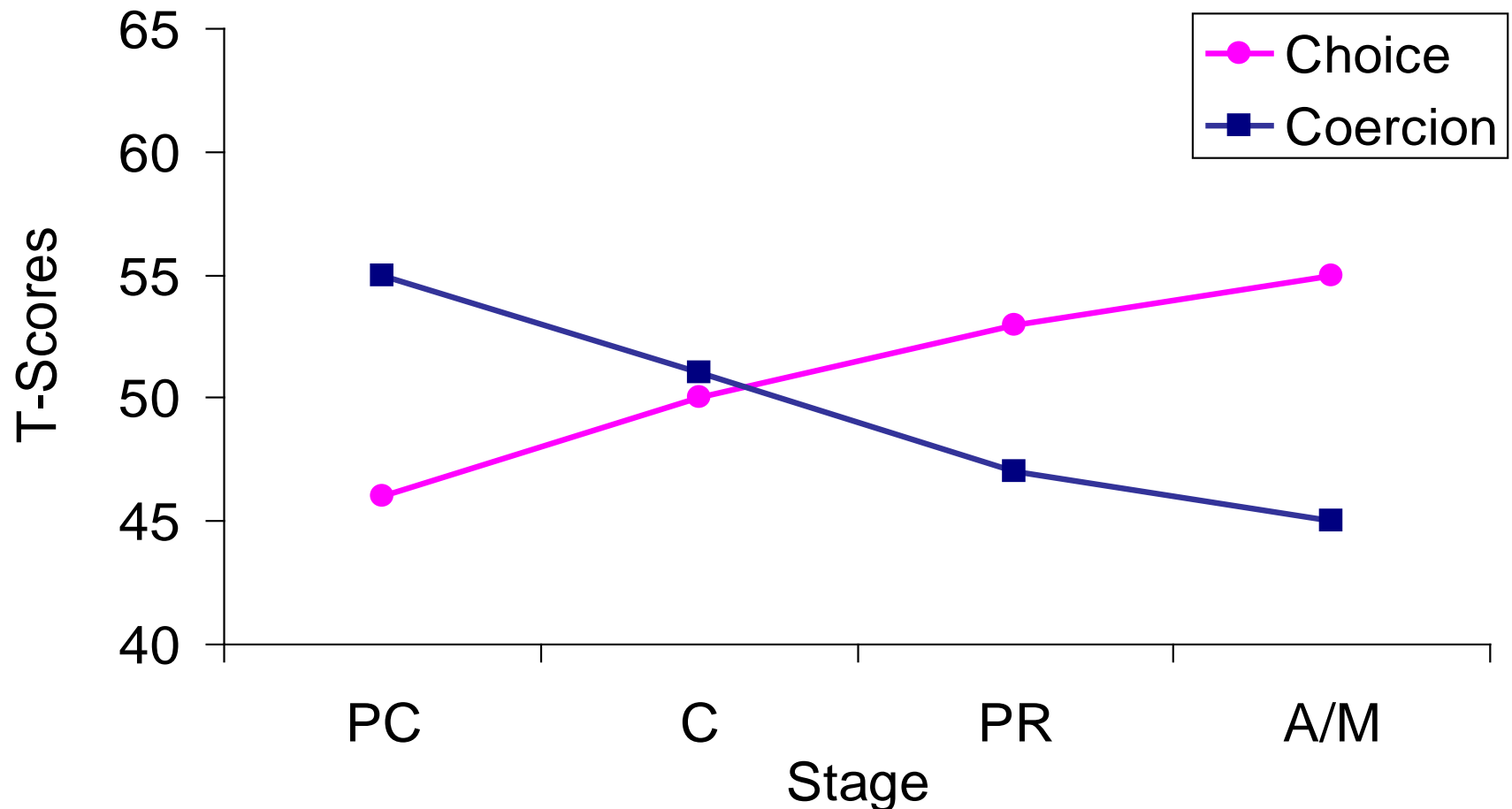
- Air Force example with smoking
- Substance Abuse
- Partner Abuse



# Decisional Balance of Drug Addiction Treatment Across Stage



# Perceived Coercion and Choice Over Participating In Drug Addiction Treatment Across Stage



# Partner Abuse: Five Month Follow-up with 492 Participants

Offender Report	Standard Care & 3 Individualized Computer Sessions	Mandated Standard Group Therapy
1. Precontemplation Stage	18%	30%
2. Action Stage with Low Relapse Risk	52%	26%
3. Couples Therapy	20%	11%
4. Other Group Therapy	34%	19%
5. Self-help Books	57%	29%
6. Talked to Medical Professional	40%	26%

# Partner Abuse: Five Month Follow-up with 492 Participants

Victims Report	Standard Care & 2-3 Individualized Computer Sessions	Mandated Standard Group Therapy
1. Violence	16%	37%
2. Condom Use	17%	8%

# Intervention Targeting and Tailoring

One Size Fits All



# Intervention Targeting and Tailoring

One Size Fits All



Stage of Change

Targeted (Stage-Matched)



# Intervention Targeting and Tailoring

One Size Fits All



Stage of Change

Targeted (Stage-Matched)



Pros & Cons

Self-Efficacy

Processes

Tailored (Individualized)



# Inclusive Care from Two Clusters of Paradigms for Individuals and Entire Populations

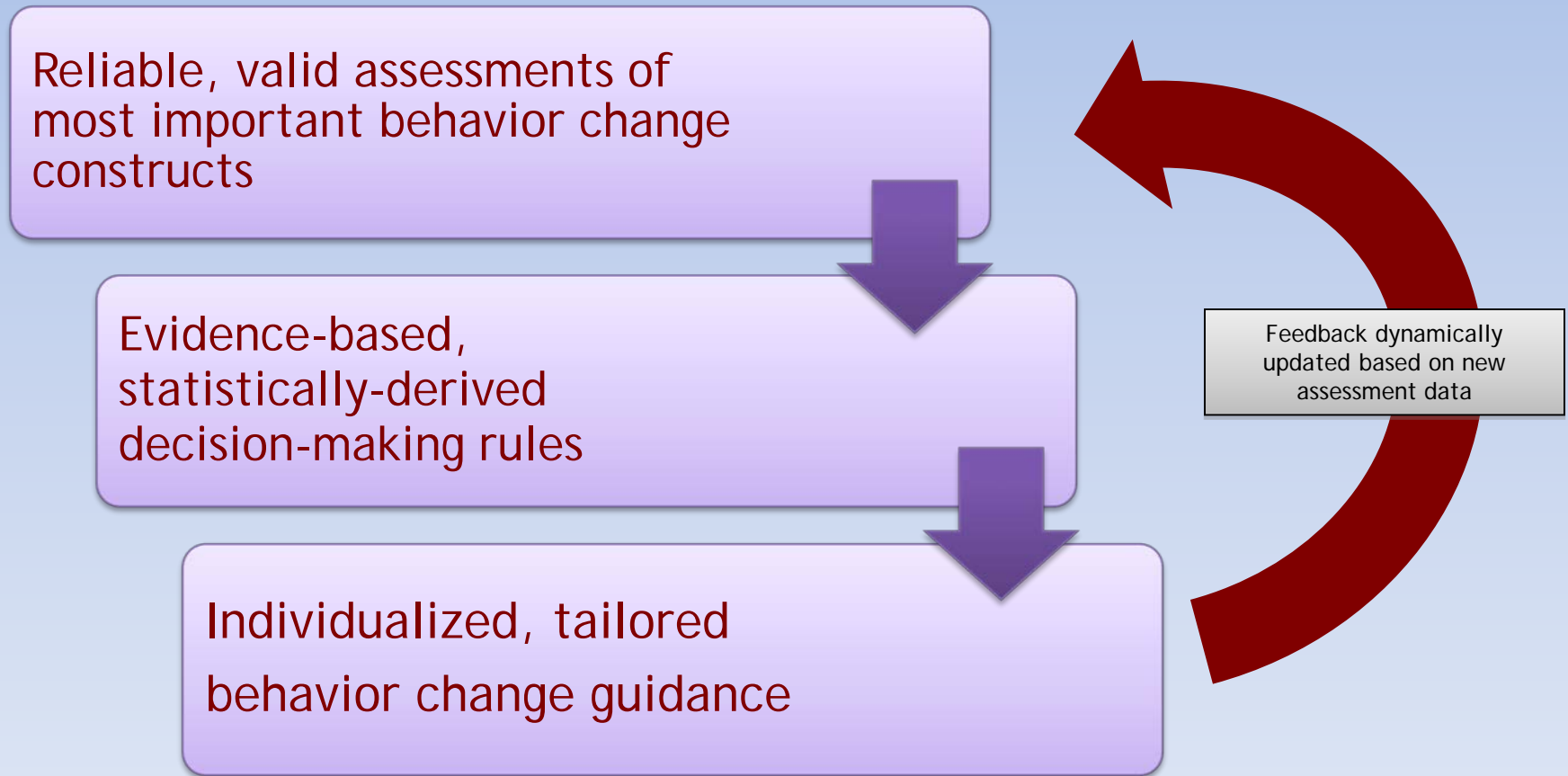
**Patient Health      Complemented by      Population Health**

1. Individual Patients
2. Action Oriented
3. Reactive
4. More Selective
5. Standardized

1. Entire Populations
2. Stage-based
3. Proactive
4. More Inclusive
5. Tailored



# Computer-Tailored Interventions (CTI)



# Inclusive Care from Two Clusters of Paradigms for Individuals and Entire Populations

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# Inclusive Care from Two Clusters of Paradigms for Individuals and Entire Populations

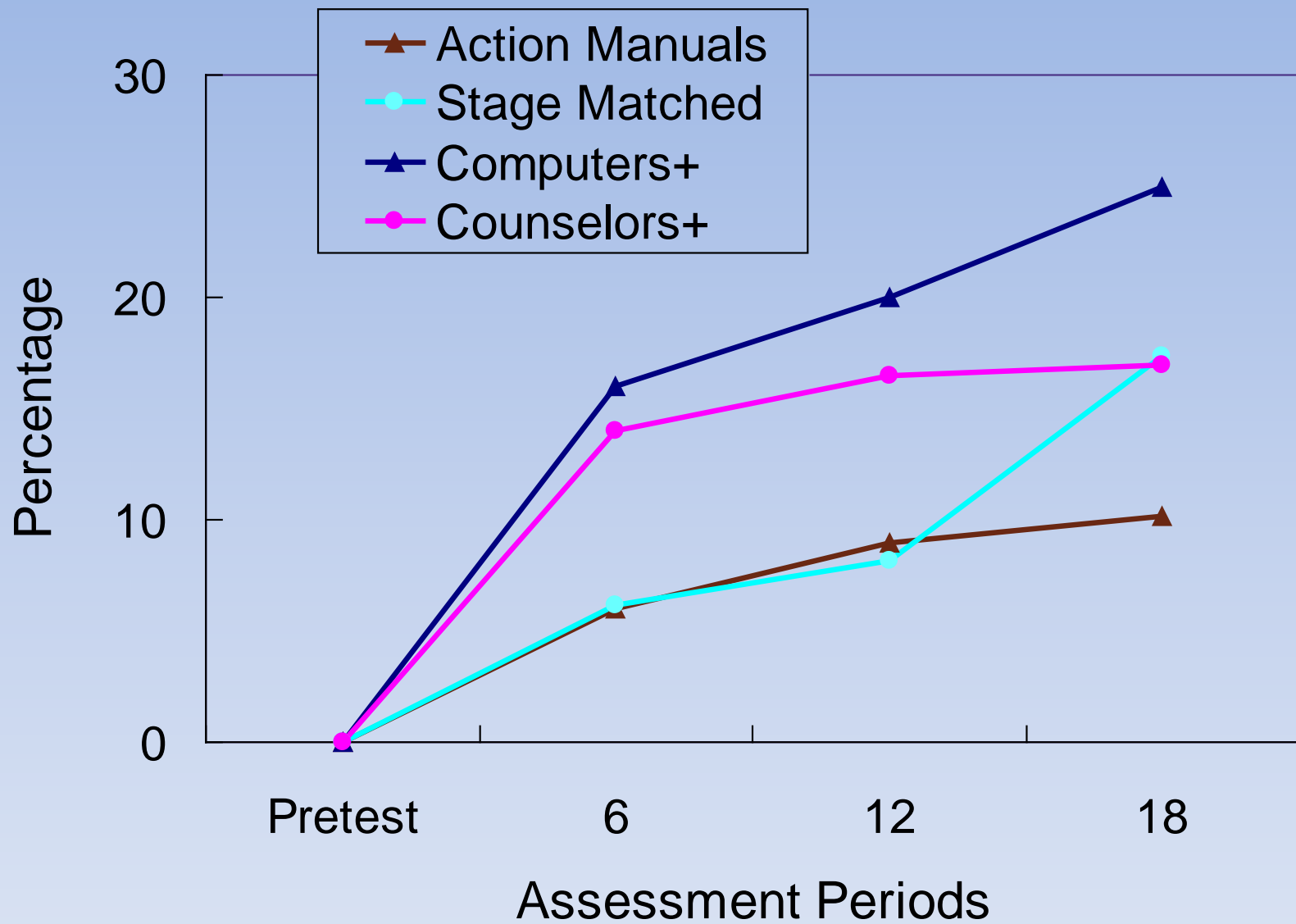
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5. Tailored
6. Digitally Delivered
7. Clinic, Home, School, corrections, company based.

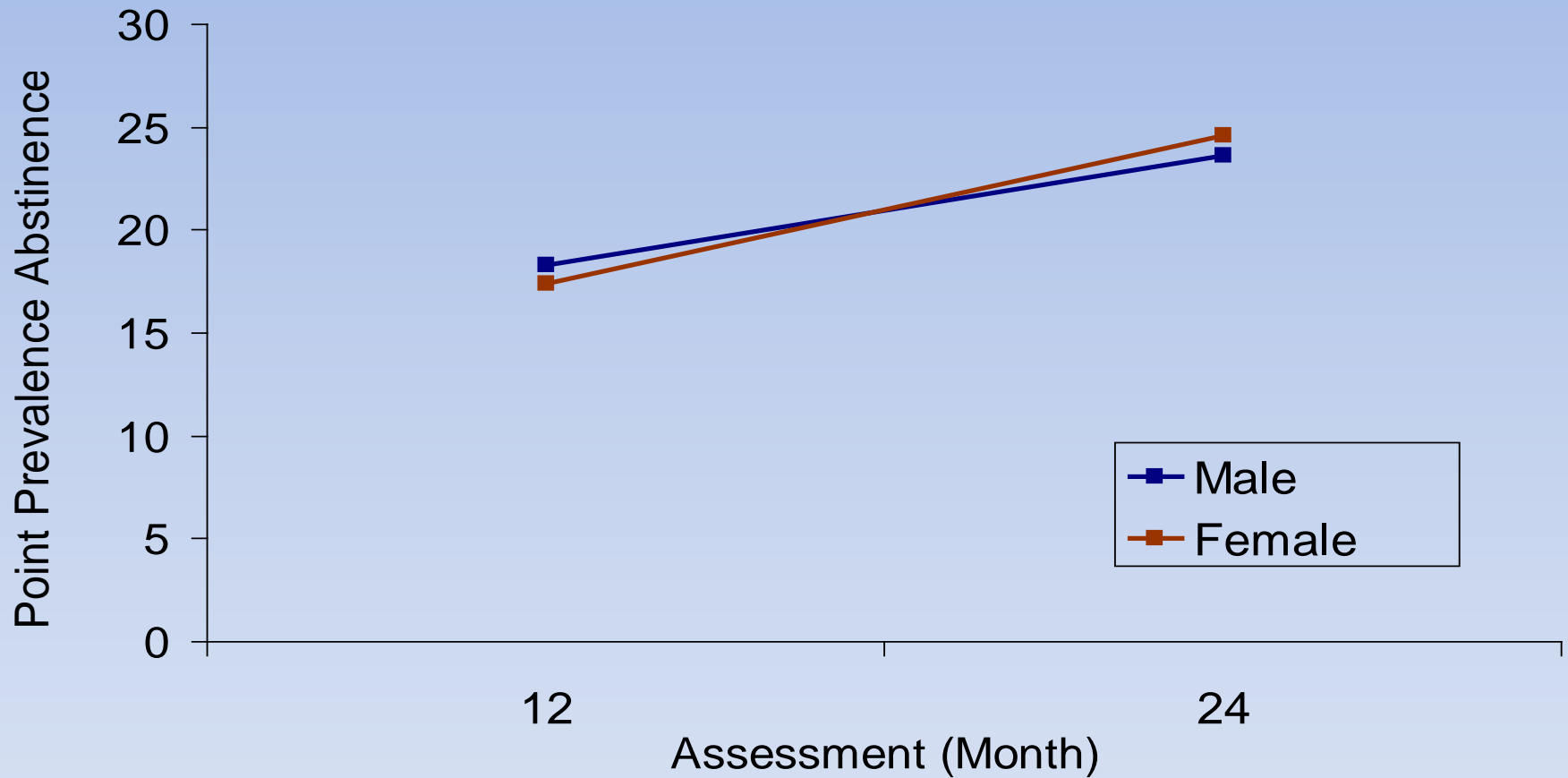
# Treatment Groups

1. Action-oriented Manuals
2. Stage-Matched Manuals
3. Stage-Matched Computers & Manuals
4. Counselors & Stage-Matched  
Computers



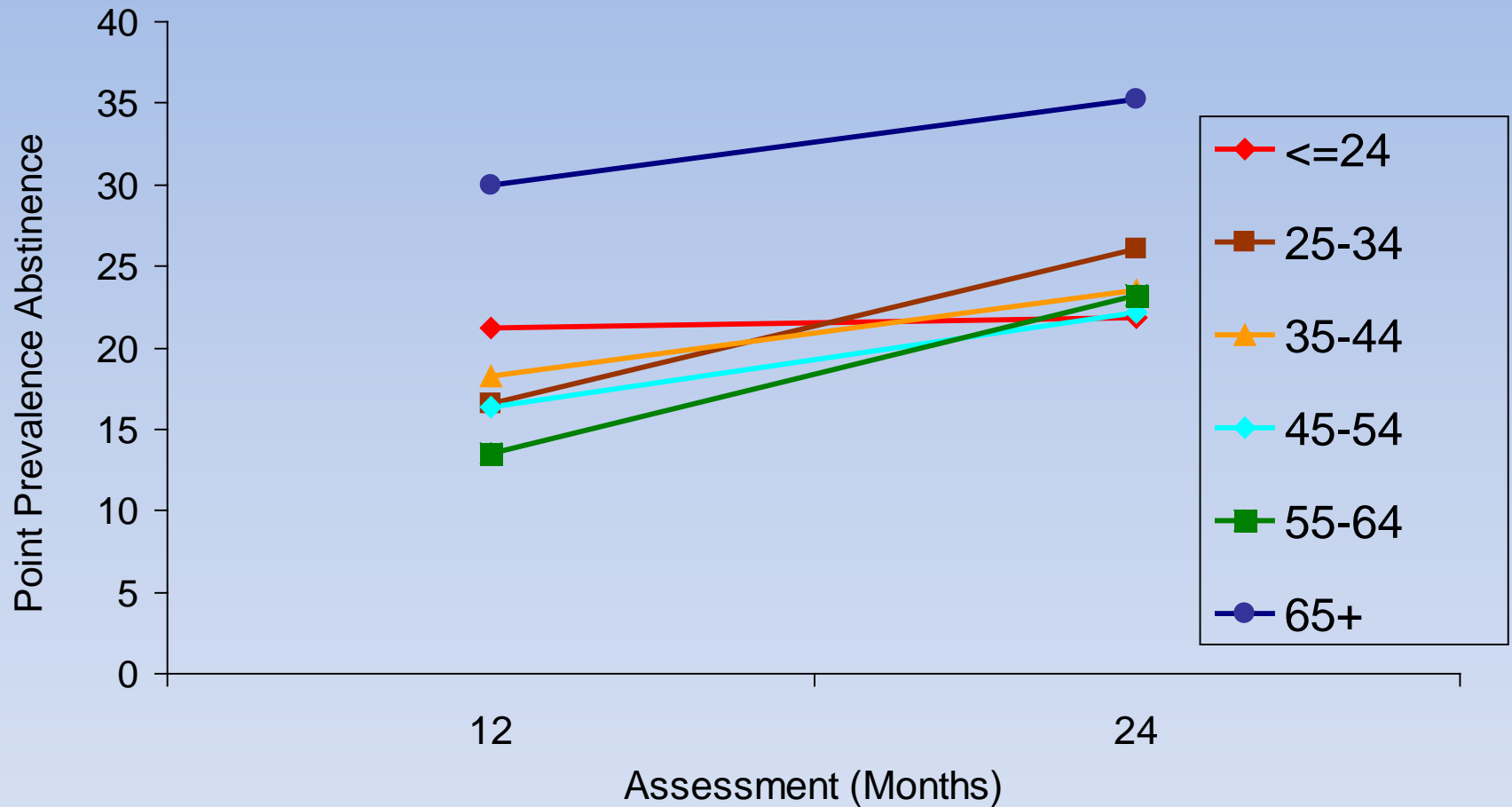
Prochaska, JO, DiClemente, CC, Velicer, WF & Rossi, JS. (1993). Standardized, individualized, interactive and personalized self-help programs for smoking cessation. *Health Psychology*, 12, 399-405.

# Gender



Velicer, WF, Redding, CA, Sun, X, & Prochaska, JO. (2007). Demographic variables, smoking variables, and outcome across five studies. *Health Psychology*, 26, 278-287.

# Age



Velicer, WF, Redding, CA, Sun, X, & Prochaska, JO. (2007). Demographic variables, smoking variables, and outcome across five studies. *Health Psychology, 26*, 278-287.

# Proactive Cessation With Adolescents in Primary Care

Tailored Intervention

23.9%

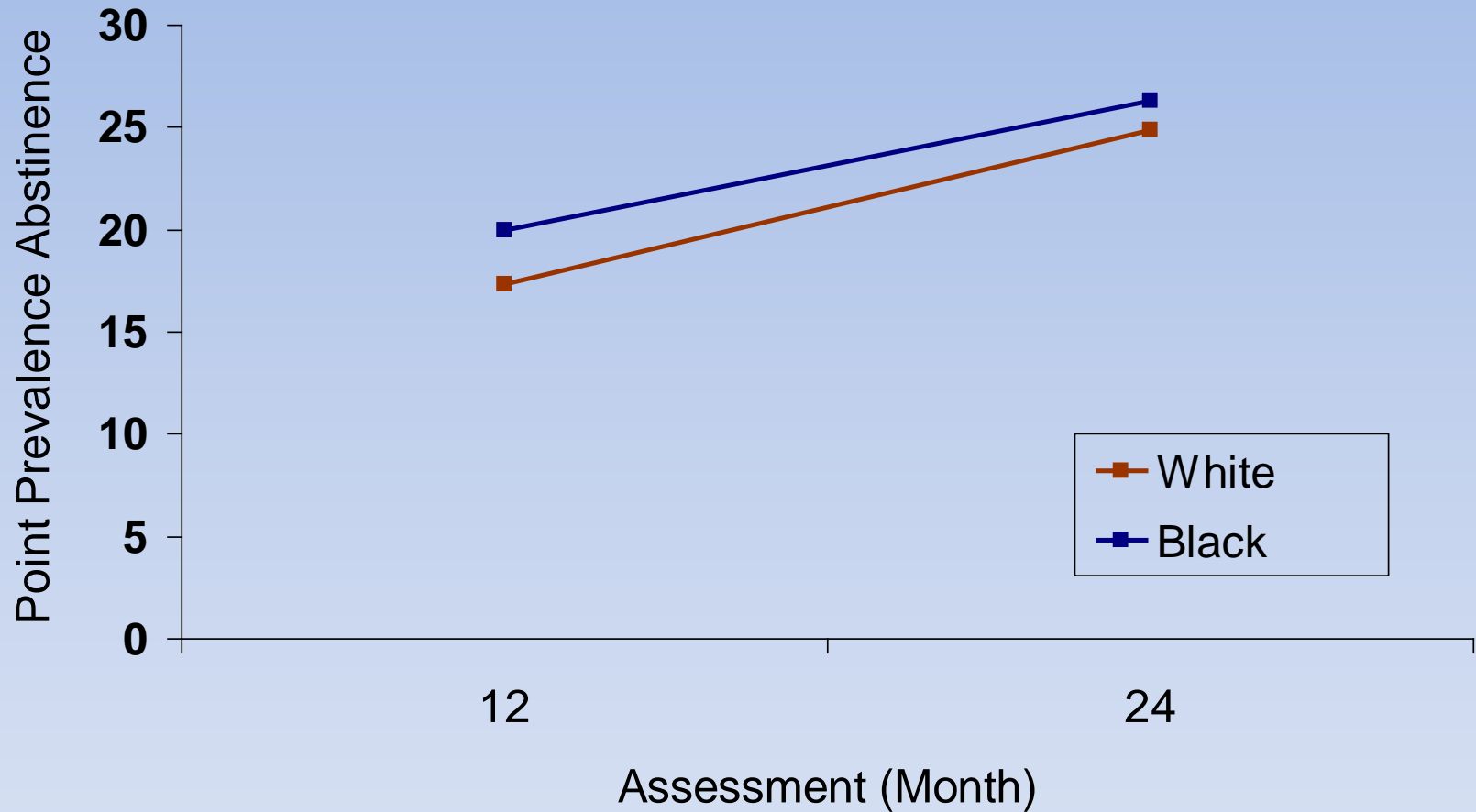
Assessment Only

11.4%

Hollis, JF, Polen, MR, Whitlock, EP; Lichtenstein, E., Mullooly, JP, Velicer, W.F., & Redding, C.A. (2005). TEEN REACH: Outcomes from a randomized controlled trial of a tobacco reduction program among teens seen in primary medical care. *Pediatrics*, 115, 981-999.

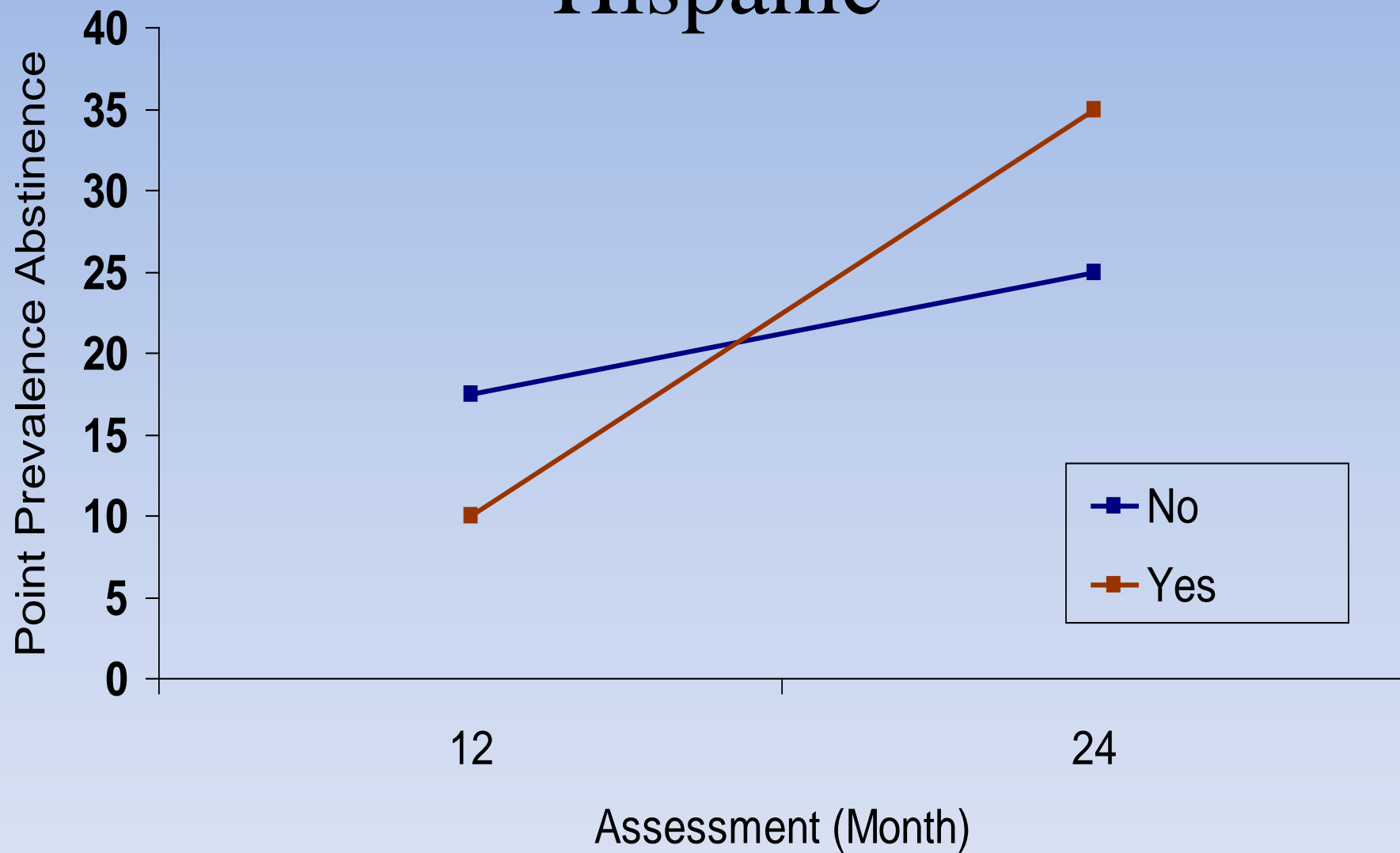


# Race



Velicer, WF, Redding, CA, Sun, X, & Prochaska, JO. (2007). Demographic variables, smoking variables, and outcome across five studies. *Health Psychology*, 26, 278-287.

# Hispanic



# Proactive Cessation with Depressed Patients: Abstinence at 18 Months

Tailored Intervention +

24.6%

Assessment Only

19.1%

Hall, S. M., Tsoh, J. V., Prochaska, J. J., Eisendrath, S., Humfleet, G. L., Gorecki, J. A. et al. (2006). Treatment for Cigarette Smoking Among Depressed Mental Health Outpatients: A Randomized Clinical Trial. *American Journal of Public Health*, 96, 1808-1814.

# Proactive Cessation with Patients Hospitalized for Mental Illness

Tailored

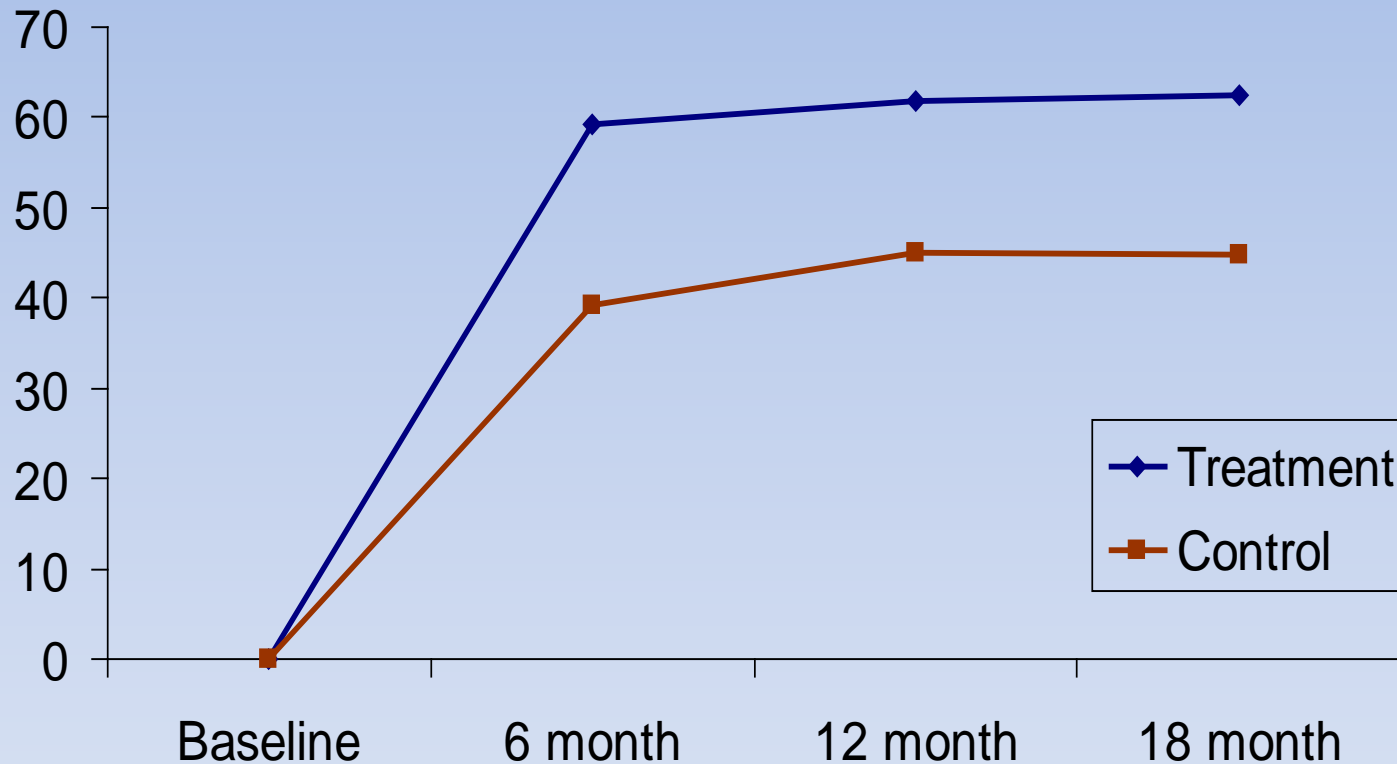
20%

Assessment

8%

Prochaska, J.J., Hall, S., Delucchi, K., & Hall, S.M. (2014). Efficacy of initiating tobacco dependence treatment in inpatient psychiatry: A randomized controlled trial. *American Journal of Public Health*, 104(8), 1557-1565.

# Percentage in Action/Maintenance for Stress Management



$\chi^2$  significant ( $p < .001$ ) at 6, 12, & 18 months (Pre-Action at Baseline Only)

Evers, K.E., Prochaska, J.O., Johnson, J.L., Mauriello, L.M., Padula, J.A., & Prochaska, J.M. (2006). A randomized clinical trial of a population- and Transtheoretical model-based stress-management intervention. *Health Psychology*, 25, 521-529.

# Inclusive Care from Two Clusters of Paradigms for Individuals and Entire Populations

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4. More Selective
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6. Clinician Delivered
7. Clinic Based
8. Efficacy

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7. Home, School, corrections, company based.
8. Impact

# Original Impact Equation

$$\text{Impact} = \text{Reach} \times \text{Efficacy}$$

$$\text{Impact} = (5\% \text{ Reach}) \times (30\% \text{ Abstinence}) = 1.5\%$$

$$\text{Impact} = (75\% \text{ reach}) \times (20\% \text{ Abstinence}) = 15\%$$

# New Impact Equation

$$\text{Impact} = \text{Reach} \times \text{Efficacy} \times (\Sigma \text{ Behaviors Changed})$$



# Adding TTM-tailored Interventions to Midwife Counseling with Pregnant Smokers

Adding TTM-tailored interventions produced 8.2 times the impacts of midwife counseling alone

1. Increased Recruitment
2. Increased Retention
3. Increased Efficacy
4. Decreased Mis-reporting
5. Produced 8.2 times greater impacts

Costs per health condition and behavior and percentage of successful employees at long-term follow-up who participate in our programs

Health Related Condition	Cost per Employee	Costs per 1,000 employees	% of long-term successes per 1,000 employees
Heart Disease	\$6,000	\$232,000	N/A
Stress	\$4,100	\$2,700,000	65%
Smoking	\$4,000	\$880,000	25%
Diet Risk	\$7,000	\$2,000,000	45%
Exercise Risk	\$3,800	\$1,700,000	45%
Weight Risk	\$3,900	\$1,700,000	30%
Non-adherence: Statins			60%
Non-adherence: Anti-hypertensive			60%
Depression	\$6,400	\$1,900,000	70%

# Multiple Behavior Change Strategies

- 1) Sequential
- 2) Simultaneous: Modular
- 3) Simultaneous: Coaction
- 4) Simultaneous: Integrative
  - a. Bullying Prevention
  - b. Proactive Health Consumer

Coaction: The increased probability of progressing to Action on a second behavior (e.g. diet) when individuals have progressed to Action on an initial behavior (e.g. smoking).

Coaction in	Odds Ratios
Control Group	1.00
TTM Intervention Group	1.50-3.50

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8. Efficacy

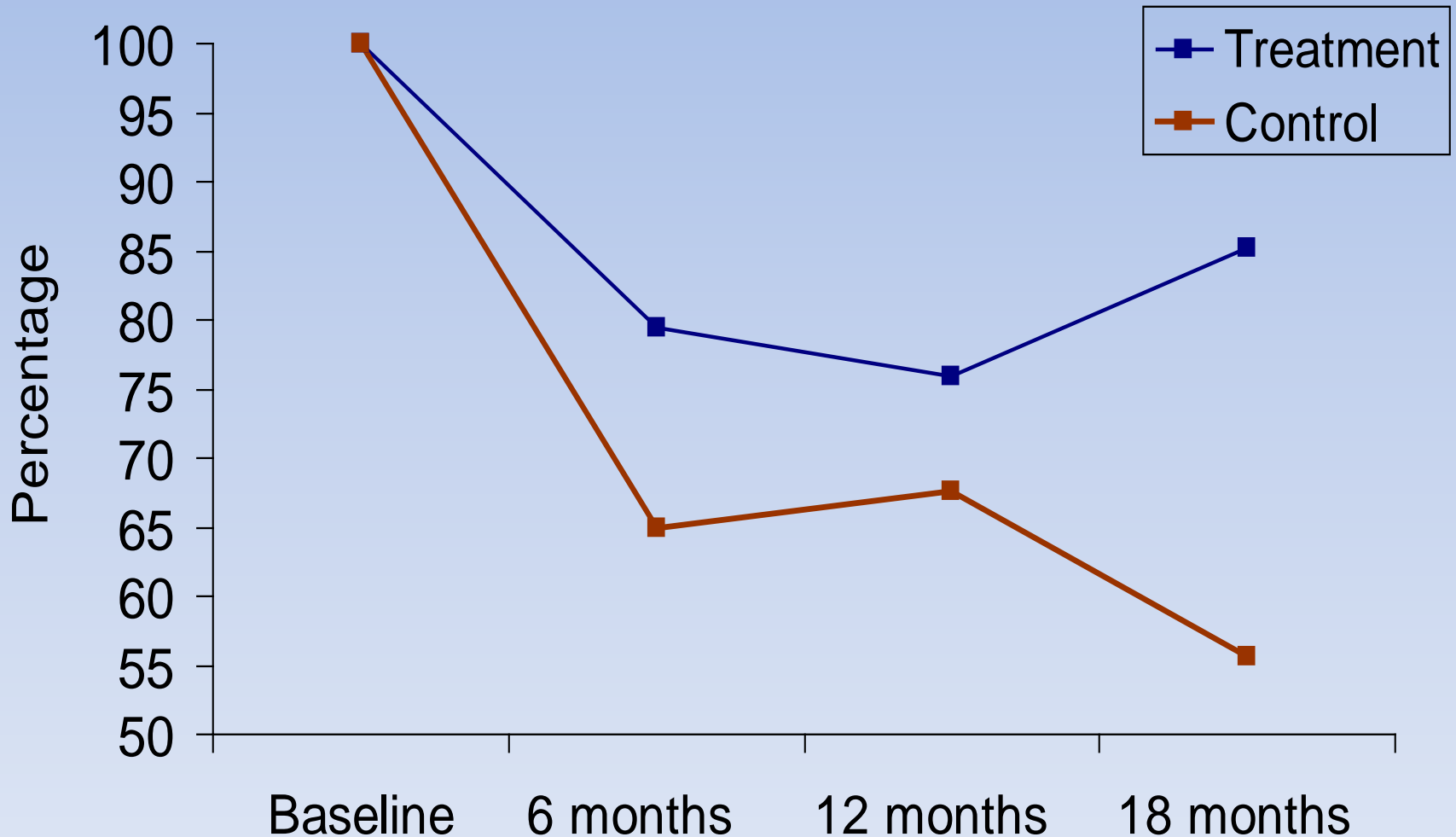
8. Impact

9. Specificity

9. Synergy

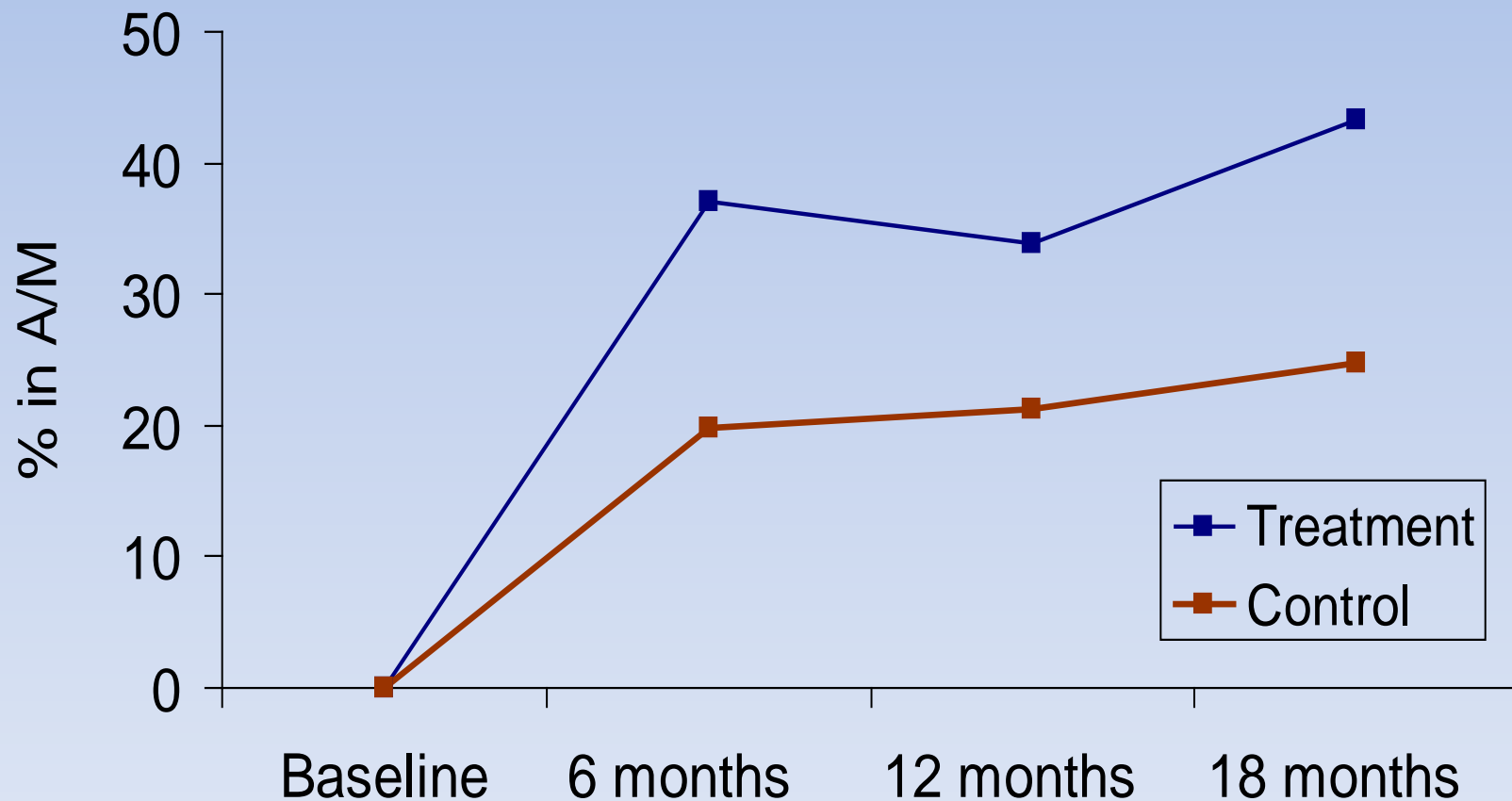
# Adherence: Regression from A/M by Group

## Post-action at Baseline



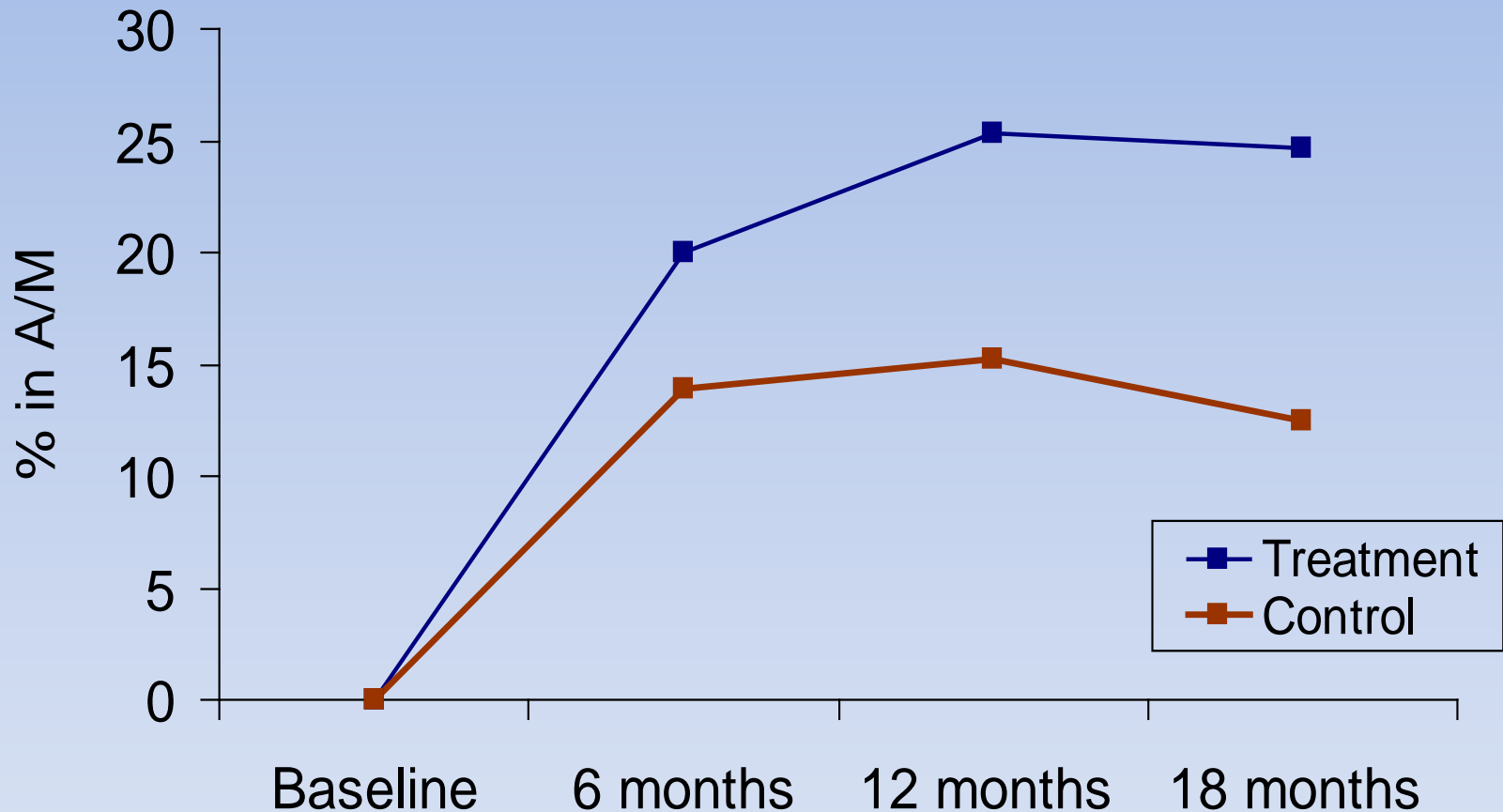
# Exercise Staging: Adherence Group

## Progression to A/M by Group (pre-action at baseline)



# Dietary Fat Staging: Adherence Group

## Progression to A/M by Group (pre-action at baseline)



Johnson, SS, Driskell, MM, Johnson, JL, Dymont, SJ, Prochaska, JO, Prochaska, JM, & Bourne, L. (2006). Transtheoretical model intervention for adherence to lipid-lowering drugs. *Disease Management*, 9, 102-114.



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7. Clinic Based
8. Efficacy
9. Specificity
10. Fragmented

## **Complemented by Population Health**

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8. Impact
9. Synergy
10. Integrated

# Inclusive Care

Inclusive Research + Inclusive Practice  
=

Inclusive Care

*Using the Stages of Change to  
Overcome the Top Threats  
to Your Health and Happiness*

# CHANGING TO THRIVE

JAMES O. PROCHASKA, PhD

CO-AUTHOR OF *CHANGING FOR GOOD* and  
THE GROUNDBREAKING STAGES OF CHANGE MODEL

.....  
JANICE M. PROCHASKA, PhD

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