

Pro-Change LifeStyle Program Outcomes

The outcomes of Pro-Change tailored expert system interventions administered to participants in pre Action stages are outlined below.

Stress Management: A national sample of pre-Action adults was provided Pro-Change's Stress Management intervention. At the 18-month follow-up, a significantly larger proportion of the treatment group (62%) was effectively managing their stress when compared to the control group. The intervention also produced statistically significant reductions in stress and depression and an increase in the use of stress management techniques when compared to the control group. (Evers et al., 2006)

Adherence to Antihypertensive Medication: Over 1,000 members of a New England group practice who were prescribed antihypertensive medication participated in Pro-Change's Adherence to Antihypertensive Medication intervention. The vast majority (73%) of the intervention group who were previously pre-Action were adhering to their prescribed medication regimen at the 12-month follow-up when compared to the control group. (Johnson et al., 2006b)

Adherence to Lipid-Lowering Drugs: Members of a large New England health plan and various employer groups who were prescribed a cholesterol lowering medication participated in Pro-Change's Adherence to Lipid-Lowering Drugs intervention. More than half of the intervention group (56%) who were previously pre-Action were adhering to their prescribed medication regimen at the 18-month follow-up. Additionally, only 15% of those in the intervention group who were already in Action or Maintenance relapsed into poor medication adherence compared to 45% of the controls. Further, participants who were at risk for physical activity and unhealthy diet were given only stage-based guidance. The treatment group doubled the control group in the percentage in Action or Maintenance at 18 months for physical activity (45%) and diet (25%). (Johnson et al., 2006a)

Depression Prevention: Participants were 350 primary care patients experiencing at least mild depression but not involved in treatment or planning to seek treatment for depression in the next 30 days. Patients receiving the TTM intervention experienced significantly greater symptom reduction during the 9-month follow-up period. The intervention's largest effects were observed among patients with moderate or severe depression, and who were in the Precontemplation or Contemplation stage of change at baseline. For example, among patients in the Precontemplation or Contemplation stage, rates of reliable and clinically significant improvement in depression were 40% for treatment and 9% for control. Among patients with mild depression, or who were in the Action or Maintenance stage at baseline, the intervention helped prevent disease progression to Major Depression during the follow-up period.

Weight Management: Twelve hundred seventy-seven overweight or moderately obese adults (BMI 25-39.9) were recruited nationally, primarily from large employers. Those randomly assigned to the treatment group received a stage-matched multiple behavior change guide and a series of tailored, individualized interventions for three health behaviors that are crucial to effective weight management: healthy eating (i.e., reducing calorie and dietary fat intake), moderate exercise, and managing emotional distress without eating. Up to three tailored reports (one per behavior) were

delivered based on assessments conducted at four time points: baseline, 3, 6, and 9 months. All participants were followed up at 6, 12, and 24 months. Multiple Imputation was used to estimate missing data. Generalized Estimating Equations (GEE) were then used to examine differences between the treatment and comparison groups. At 24 months, those who were in a pre-Action stage for healthy eating at baseline and received treatment were significantly more likely to have reached Action or Maintenance than the comparison group (47.5% vs. 34.3%). The intervention also impacted a related, but untreated behavior: fruit and vegetable consumption. Over 48 % of those in the treatment group in a pre-Action stage at baseline progressed to Action or Maintenance for eating at least 5 servings a day of fruit and vegetables as opposed to 39.0% of the comparison group. Individuals in the treatment group who were in a pre-Action stage for exercise at baseline were also significantly more likely to reach Action or Maintenance (44.90% versus 38.10%). The treatment also had a significant effect on managing emotional distress without eating, with 49.7% of those in a pre-Action stage at baseline moving to Action or Maintenance versus 30.3% of the comparison group. The groups differed on weight lost at 24 months among those in a pre-action stage for healthy eating and exercise at baseline. Among those in a pre-Action stage for both healthy eating and exercise at baseline, 30.0% of those randomized to the treatment group lost 5% or more of their body weight versus 18.6% in the comparison group. Co-variation of behavior change occurred and was much more pronounced in the treatment group with the treatment group losing significantly more than the comparison group. This study demonstrates the ability of TTM-based tailored feedback to improve healthy eating, exercise, managing emotional distress, and weight on a population basis. The treatment produced the highest population impact to date on multiple health risk behaviors. (Johnson et al., 2008)

Smoking Cessation: Multiple studies have found individualized interventions tailored on the 14 TTM variables for smoking cessation to effectively recruit and retain pre-Action participants and produce long-term abstinence rates within the range of 22 – 26%. These interventions have also consistently outperformed alternative interventions including best-in-class action-oriented self-help programs (Prochaska, DiClemente, Velicer, & Rossi, 1993), non-interactive manual-based programs, and other common interventions (Prochaska et al., 2001a; Prochaska, Velicer, Fava, Rossi, & Tsoh, 2001b). Furthermore, these interventions continued to move pre-Action participants to abstinence even after the program ended. (Prochaska et al., 2001a; 2001b; Velicer et al., 1999). For a summary of smoking cessation clinical outcomes, see Velicer, Redding, Sun, & Prochaska, 2007.

Important Note: It is important to note that Pro-Change interventions have a significantly greater impact than other programs because of their ability to:

- Involve a large percentage of the target population (targets people at every stage),
- Support high participation rates,
- Achieve strong efficacy rates,
- Produce multiple behavior changes, and
- The use of optimal tailoring minimizes demands on clients and coaches.

For example, out of 1,000 people needing to make a lifestyle change (those in a pre-Action stage), a Pro-Change intervention targets 100% of that population while other programs typically target only the 20% of that population in the Preparation stage. In addition, Pro-Change interventions typically have 70- 80% participation rate with proactive recruitment while other programs typically



have a 10% participation rate.¹ Based on the following illustration, Pro-Change interventions clearly have a more substantial impact than competitors *even when they share the same efficacy rates*.

	Target Population	x	Participation Rate	x	Hypothetical Efficacy	=	# of People that changed lifestyle
Pro-Change Intervention	1,000 (100%)	x	80% ²	x	30%	=	240
Other Program	200 (20%) ³	x	10% ⁴	x	30%	=	30

As you can see in this example, even with the same efficacy rates, a Pro-Change intervention would have **8 times greater impact** on the population than another program.

Producing high impacts across a series of single and multiple health risk behaviors is a major reason Pro-Change’s LifeStyle Management Programs received the Gold Award for Best Practices in Health Management from URAC, a national accreditation organization.

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3 Laforge, R.G., Velicer, W.F., Richmond, R., & Owen, N. (1999). Stage distributions for five health behaviors in the USA and Australia. *Preventive Medicine*, 28, 61-74.

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