

SYMPOSIUM 32
TAILORED INTERVENTIONS
TO PREVENT SUBSTANCE
ABUSE BY ADOLESCENTS

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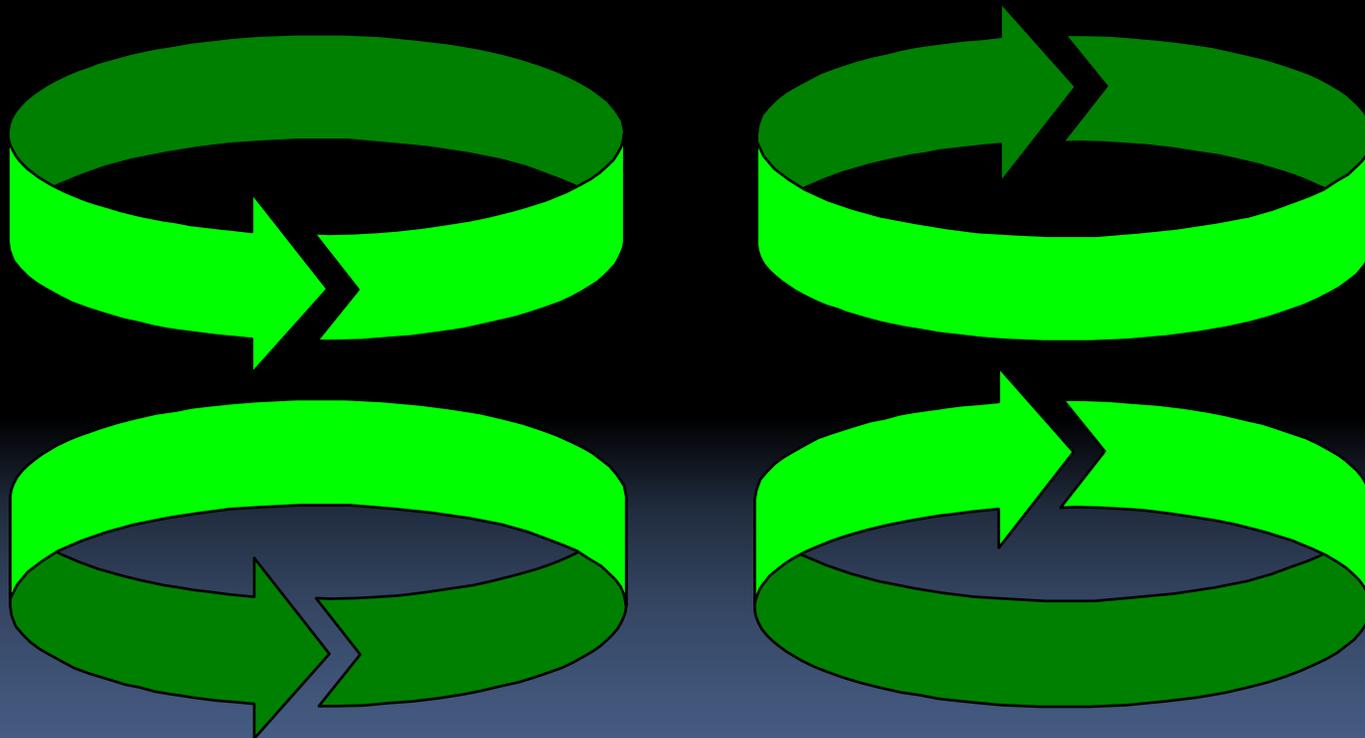
Overview of Symposium
33rd Annual Meeting of the Society of Behavioral Medicine
New Orleans LA, April 11-14, 2011

Research supported by NIDA Grant DA020112(PI: WF Velicer)
Collaborating organization: ProChange Behavior Systems

Discussant

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Background Theme I. Expert System Interventions



Background

- **URI Expert System Intervention for Smoking Cessation has been developed and tested in multiple clinical trials**
 - **Cessation rates 22-26% across 8 studies**
 - **Three versions appear to produce comparable results**
 - **Print**
 - **Interactive (Internet)**
 - **Telephone (least evidence)**
- Behaviors include smoking cessation, diet, exercise, UV protection, stress management, medication adherence**

Expert Systems: Definitions

(Also called 'tailored interventions' and 'computer-based interventions')

General definition

- Software system that mimics the reasoning of a human expert

Empirically based systems:

- Must contain a collection of facts and rules about a field, and
 - Must contain a way of making inferences from these facts and rules.
- [Negotia, 1985]

Expert System Components

- **Well developed assessment battery**
- **Set of normative data for initial comparisons**
- **Decision making rules**
- **Access to previous data for ipsative comparisons**
- **Written, verbal, graphic, and pictorial materials which can be assembled to provide feedback**

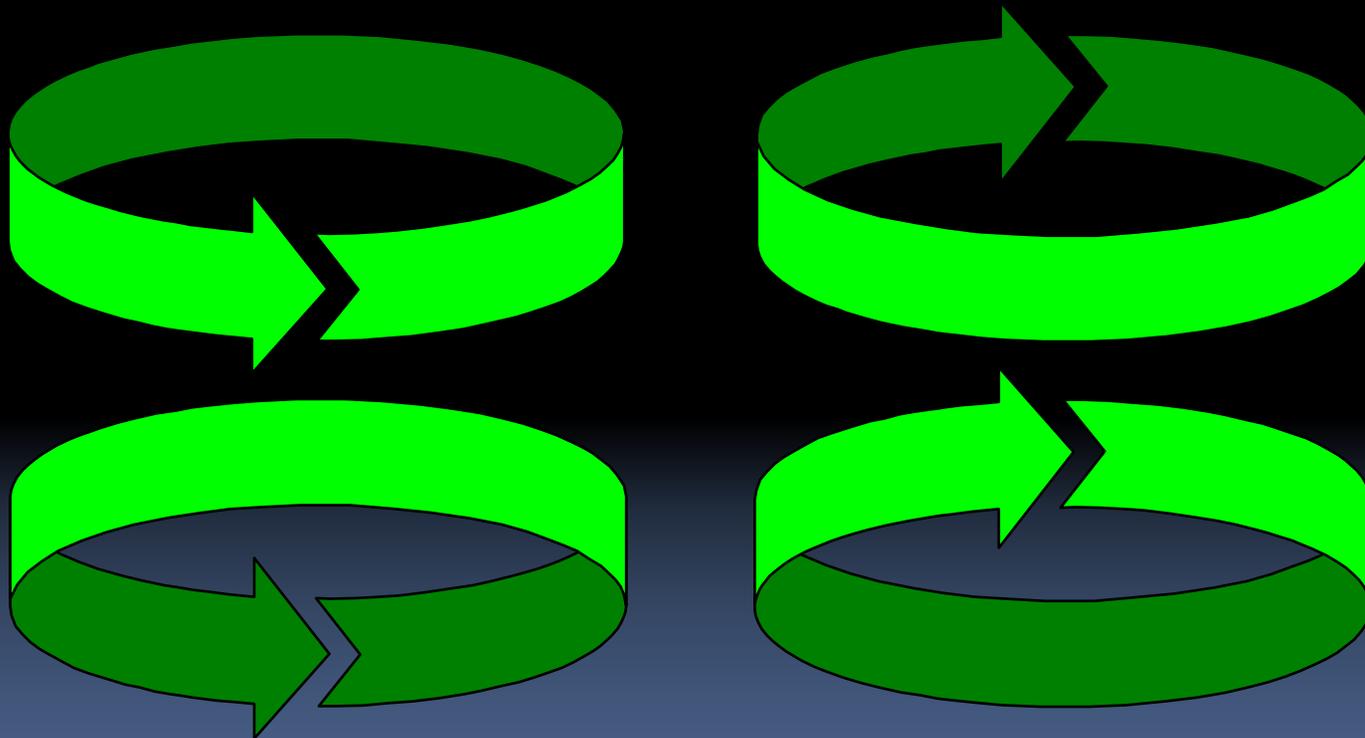
Advantages of Computer-based Interventions

- **Cost-effective**
- **Systematically addresses multiple risk behaviors**
- **Incorporates visual and audio stimuli to engage youth**
- **Provides response confidentially reducing response biases**
- **Reproducible intervention feedback with high fidelity**
- **Easily updated to add new information, new response modalities, and/or new health promotion topics**
- **Can be disseminated to multiple settings including clinics, worksites, and home**

New Expert System Advances

- **Presentation 2 will describe testing two previously developed expert systems (Exercise, Diet)**
- **Presentation 3 will discuss the development and testing of two new expert system interventions (Smoking, Alcohol)**

Background Theme II. Transtheoretical Model of Behavior Change



Transtheoretical Model: Overview

- **Theoretical Model Developed primarily at the University of Rhode Island**
- **Model of Intentional Change**
- **Integrates the key constructs from different theoretical models**
- **Model applies to a wide variety of problem behaviors, usually with minor modifications**
- **Phenomenological model, i.e., employs the perceived reality of the individual**

Overview:

Three Dimensions of Model

I. Temporal ordering

- **Stages of Change**

II. Dependent [or Outcome] Measures

- **Decisional Balance**
- **Temptation**
- **Self Efficacy**
- **Behavior[s]--Specific to problem**

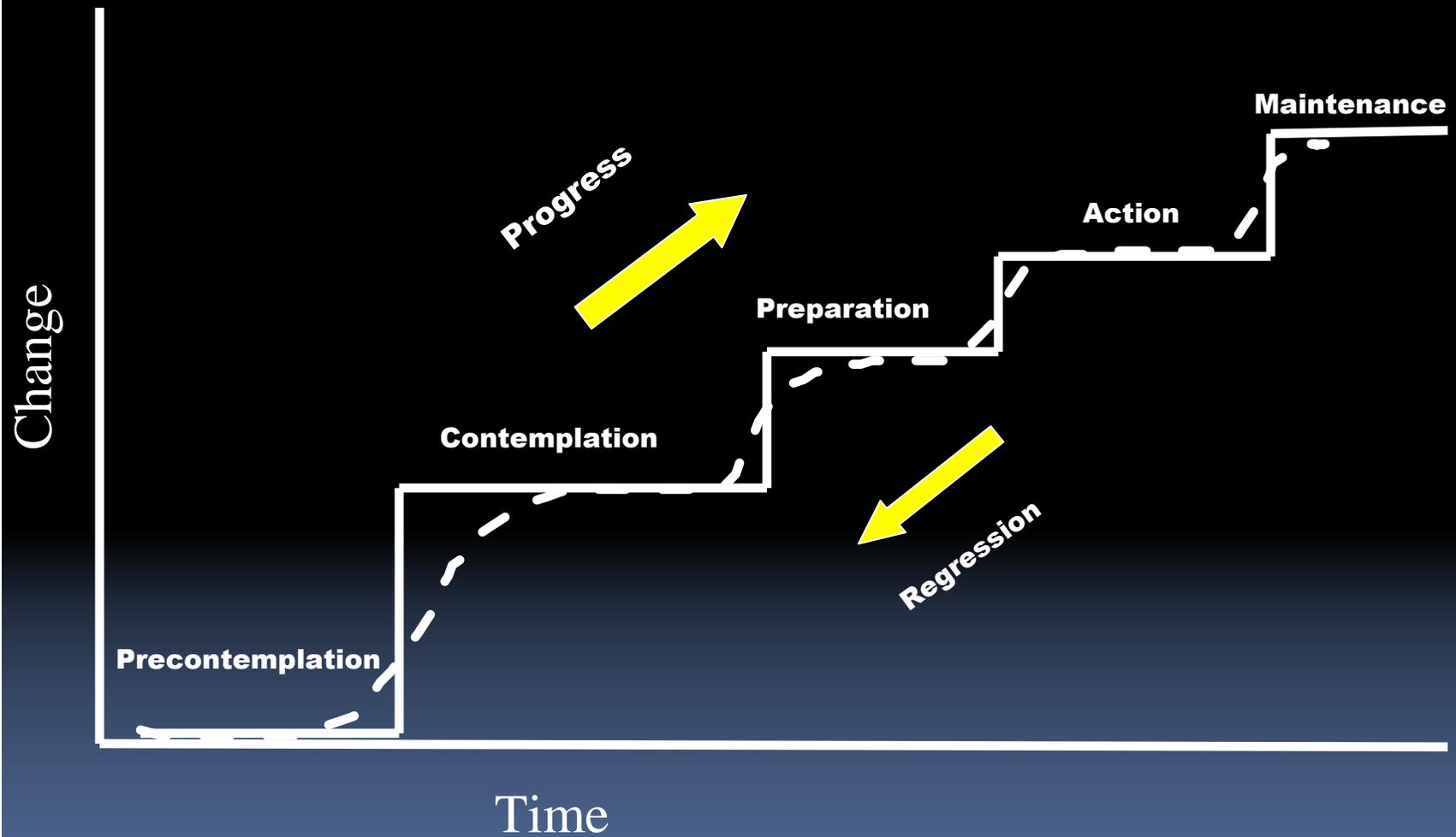
III. Independent Measures

- **Processes of Change**
- **External Environment—Social Influences**
- **Internal Environment—Biological Influences**

Stages of Change (Smoking as example)

- **Precontemplation**
 - **Smoking; not planning to quit in next 6 months**
- **Contemplation**
 - **Smoking; planning to quit in next 6 months**
- **Preparation**
 - **Smoking; planning to quit in next 30 days**
- **Action**
 - **Not Smoking; quit in last 6 months**
- **Maintenance**
 - **Not Smoking; quit more than 6 months**

Stages of Change Over Time



A. Static Variables vs. Dynamic Variables

- ***Static Variables* cannot be easily modified**
- **Examples: Past History, Demographic Variables**
- **Statistical Modeling: Static Variables = moderators**

- ***Dynamic Variables* are open to modification**
- **Examples: Psychosocial, behavioral**
- **Statistical Modeling: Dynamic Variables = mediators**

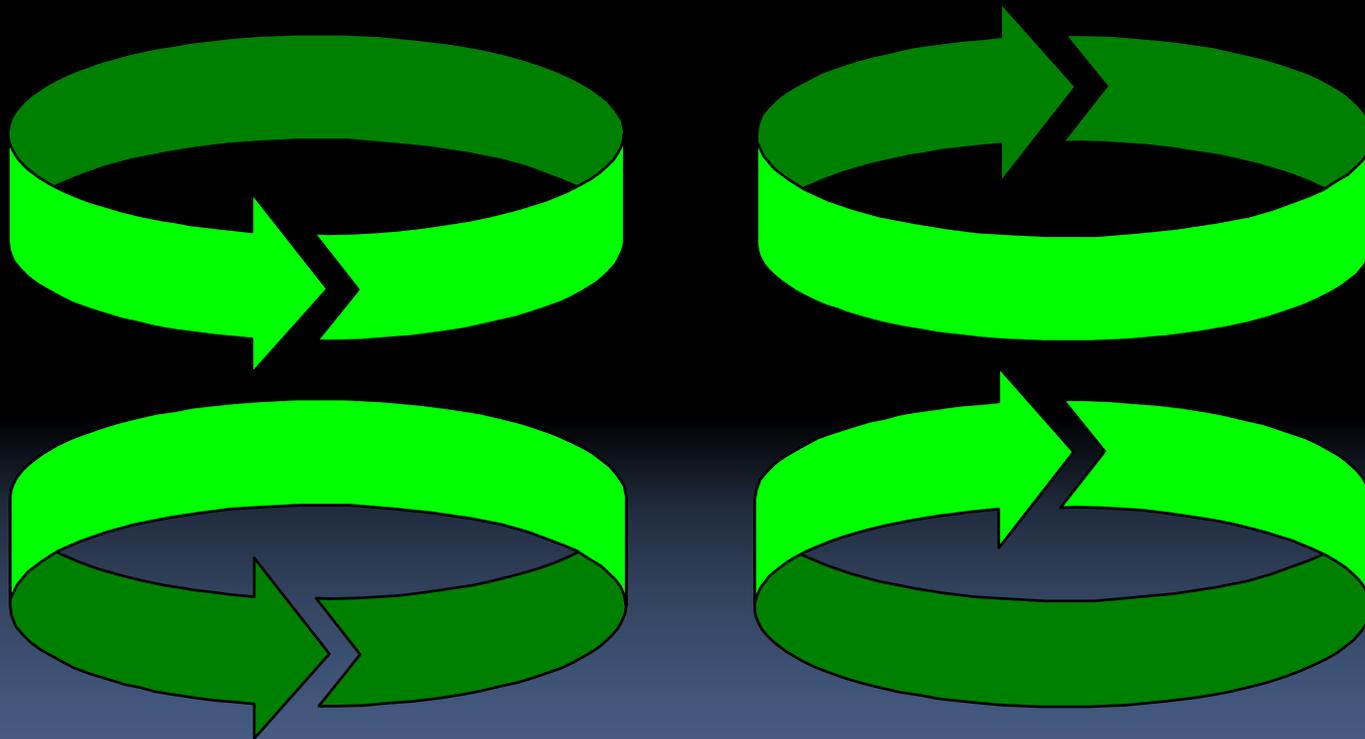
B. Model of Individual Evolutionary Process

- **Models of Behavior Change need to model change over time**
- **Models of Behavior only need to establish relationships**
- **Simply using calendar time will not be adequate**
- **Nature of change processes are critical**
- **Pattern of change over time is critical**

Transtheoretical Model Extended

- **Presentations will discuss extension of model to prevention**
- **Stages of Acquisition is a reverse of the evolutionary component of the model**

Project BEST: Overview



Project BEST

- **BEST: Behavioral Expert System Trial**
- **Two new tailored interventions tested**
- **Multiple Risk Behavior Approach**
- **Addictive Behavior Prevention**
 - **Smoking Prevention**
 - **Alcohol Prevention**
- **Energy Balance Treatment**
 - **Exercise**
 - **Diet**

Study Design

- **Randomized 2 (Treatment Groups) x 4 (Assessment Times; Months 0, 12, 24, and 36) repeated measures design**
- **Treatment occurred during Years 1, 2, and 3 of the study and Year 4 is the assessment only follow-up.**
- ***Students from 20 schools were randomized to condition by school (10 schools to A1 and 10 schools to A2)***

Study Comparisons

- **Group A1 got Addictive Behavior Prevention treatments (Smoking & Alcohol)**
- **Group A2 got Energy Balance Interventions (Exercise, Fruits & Vegetables)**
- **Group A2 serves as the control group for the Addictive Behaviors Prevention Interventions and Group A1 serves as the control for the replication study of the energy balance interventions (Exercise, Fruit & Vegetables)**
- *This design controls for type of intervention (tailored interventions delivered by computer in the classroom) and for time on task*

Subjects

- ❖ **20 schools were recruited & randomized to A1 or A2 group**
- ❖ **N=4151 6th grade students (53% male; 12.5% Hispanic; 62% white)**
- ❖ **3922 classified as Acquisition PC for Alcohol**
- ❖ **4053 classified as Acquisition PC for Smoking**

Project BEST: Schedule

Year 1 – 6th Grade (2007-2008)

1 assessment & 1 intervention session

Year 2 – 7th Grade (2008-2009)

1 assessment & 3 intervention sessions

Year 3 – 8th Grade (2009-2010)

1 assessment and 1 intervention session

Year 4 – 9th Grade (2010-2011)

1 assessment (just being completed)

Symposium Overview

- **Paper I (Oatley et al.) will describe the methods that were used to recruit, randomize, and retain 20 schools**
- **Paper II (Redding et al.) will present the preliminary outcome results for the energy balance behaviors (Exercise Diet, TV)**
- **Paper III (Paiva et al.) will present the preliminary outcome results for the addictive behaviors (Smoking & Alcohol)**