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# Application of the Transtheoretical Model to Health Education for Older Adults

Helen W. Lach, PhD, RN, CS  
Kelly M. Everard, PhD  
Gabrielle Highstein, PhD  
Carol A. Brownson, MSPH

*The application of theory to practice can be challenging. This article describes the experiences of one organization in applying the Transtheoretical Model (TTM) to a health promotion program for older adults, HealthStages. The concepts of the model, especially stage of change, were successfully used for program planning, curriculum development, and program evaluation. A Programming Grid was developed to guide curriculum development and evaluate if programs were reaching out to people at all stages of readiness to make healthy changes. Other TTM constructs, including self-efficacy, decisional balance, and processes of change were incorporated into the HealthStages curriculum. Evaluation showed that the pilot sites increased their offering of action- and maintenance-oriented programs, filling in the gaps in current programming. Older adults were receptive and interested in the model. The TTM enhanced the program by providing a framework for design and a method for reaching a wider audience of older adults with important health information.*

**Keywords:** health education; older adults; transtheoretical model; stages of change

The purpose of this article is to describe the use of the Transtheoretical Model of Behavior Change (TTM) (Prochaska & DiClemente, 1983) in the development and evaluation of a pilot health education program for older adults. The program is HealthStages, the health education component of a national education program for adults 50 and older called OASIS. OASIS is organized with a national institute that oversees a network of OASIS centers in 26 cities nationwide. Each OASIS center runs their own day-to-day operations. OASIS members are part of the large segment of the population that is growing with the age wave. As a result,

the impetus to develop health education, disease prevention, and chronic disease management strategies for them has implications for the health care system as well as individual older adults.

Although health educators have a goal of using theory to guide practice, bridging the gap between theory and practice can be difficult. The HealthStages program has successfully operationalized the TTM in a way that is useful for program planning, implementation, and evaluation. Developed in collaboration with health professionals at Washington University School of Medicine, HealthStages was initiated and piloted in three cities where OASIS centers are located: St. Louis, Missouri; Portland, Oregon; and Tucson, Arizona. This article will review the components of the TTM, describe how the model has been used with HealthStages, and discuss the implications for health education for older adults.

## ► THE TRANSTHEORETICAL MODEL OF BEHAVIOR CHANGE

The TTM was developed to help explain how people change their behavior (Prochaska, DiClemente, Velicer, & Rossi, 1993; Prochaska, Norcross, & DiClemente, 1994; Prochaska, Redding, & Evers, 1997; Prochaska, Velicer, DiClemente, & Fava, 1988; Reed, 1999). The main organizing concept of the TTM is that people go through change as a process over time. First, individuals work through cognitive and affective processes lead-

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ing to adoption of a new behavior or cessation of an unhealthy behavior, and then they move to using behavioral strategies to establish a new pattern of behavior. The four constructs of the TTM are described here: the stages of change, decisional balance, self-efficacy, and the processes of change. First, the stages of change identified in the latest model include Precontemplation, Contemplation, Preparation, Action, and Maintenance. Individuals may move through these stages in a linear fashion, or move back and forth.

Precontemplation is the stage in which a person has no intention of a behavior change in the foreseeable future, operationalized as 6 months. They might be resistant to change, or they might not even think about the behavior at all. Others may fear failure, such as the smoker who attempted smoking cessation in the past unsuccessfully. Some individuals just lack information. For example, some older adults still believe that exercise is not good for a variety of health conditions and that exercise behavior should decline with age. Still others are overwhelmed by barriers to exercising, such as obesity, diminished vision, limited mobility, or finding the time to fit exercise into a busy lifestyle.

The Contemplation stage includes people who are considering a behavior change in the next 6 months. Because they are thinking about making a change, they may be open to information about the benefits of the new behavior and how they can effect change successfully. People in this stage may not have a good enough reason to change right now but could be curious about the results they might get from changing. However, ambivalence is common in this stage, so it is easy to get stuck and never move beyond considering a change.

Preparation is the stage when people are actively planning to make a change within the next month. Individuals may take small steps toward change, such as signing up for an exercise class or buying a pair of walking shoes. They may attend health education classes to help them take action.

Action is the stage where people have made a change and have been engaging in the new behavior for less than 6 months. This stage requires commitment and energy for an individual to establish a new behavior and make it work. Individuals are looking for reinforcement for their achievement and encouragement and social support from others as they work on establishing a new habit.

Maintenance is defined as engagement in the behavior for more than 6 months. The challenge of this stage is in sustaining a habit and overcoming all the barriers that can cause relapse. For example, someone may start a walking program in the spring, but when cold weather comes in winter, they find it hard to stick with their habit. Making adaptations such as moving their walking to the mall can help prevent relapse.

Another construct of the TTM is decisional balance, which looks at the pros and cons of making behavior change. For example, identifying the specific benefits of a new behavior is especially helpful to people in the

### **The Authors**

**Helen W. Lach, PhD, RN, CS**, is an assistant professor of gerontological nursing at Saint Louis University School of Nursing in St. Louis, Missouri.

**Kelly M. Everard, PhD**, is a health psychologist and associate director of the master's program in health sciences at Washington University in St. Louis, Missouri.

**Gabrielle Highstein, PhD**, is a health psychologist and researcher at Washington University in St. Louis, Missouri.

**Carol A. Brownson, MSPH**, is a health educator and deputy director of the Robert Wood Johnson Diabetes Initiative Program Office in St. Louis, Missouri.

Contemplation and Preparation stages. If the pros outweigh the cons, people will move toward Action. Self-efficacy, an additional construct of the TTM, is based on the work of Bandura (1997). Self-efficacy is the degree to which individuals have confidence that they can take action, or sustain action once started. The greater a person's self-efficacy, the more likely he or she is to repeat a behavior. There are four factors that increase self-efficacy: self-mastery, modeling, reframing, and persuasion (Lorig et al., 1996).

Prochaska and colleagues have also described 10 processes of change that are the experiential and behavioral techniques that help people to change their behavior. These processes were derived from psychotherapy and help frame strategies to assist people at different levels of readiness to make behavior change. The experiential processes include consciousness-raising, dramatic relief, self-reevaluation, social liberation, and environmental reevaluation. The behavioral processes include counterconditioning, helping relationships, reinforcement management, self-liberation, and stimulus control. Some have found the experiential processes to be more effective early in the process of change and behavioral processes more effective in the later stages, but the findings have not been consistent (Nigg & Riebe, 2002).

The TTM adds significantly to previous models of behavior change. The key feature is the stage approach, in that different strategies and interventions are used for individuals at different stages of readiness to change or adopt behavior. In the field of smoking cessation, this approach provides a way to reach a wider audience of smokers, even those who are not yet ready to take action on smoking cessation. Research on smoking cessation has shown that if interventions move people one stage toward taking action to quit smoking (i.e., from Precontemplation to Contemplation), it doubles the likelihood that they will quit smoking in the near future (Prochaska et al., 1993). Originally developed for smoking cessation, the TTM has also been applied to the development of interventions for weight control (Rossi, Rossi, Velicer, & Prochaska, 1995) and exercise adoption (Burbank & Riebe, 2002).

<i>Class Level</i>		<i>Awareness</i>	<i>Knowledge</i>	<i>Skill Building/ Behavior Change</i>	<i>Maintenance</i>
	<i>Stage</i>	<i>Precontemplation Contemplation</i>	<i>Contemplation Preparation</i>	<i>Action</i>	<i>Maintenance</i>
<i>Topic</i>					
General Health Promotion					
Physical Activity/Fitness					
Nutrition					
Mental Health/Wellness					
Disease Management					
Memory					
Sensory Health					

FIGURE 1 HealthStages Programming Grid

### ► APPLICATION OF THE TTM FOR HEALTHSTAGES

HealthStages was a collaboration between OASIS, a not-for-profit organization, and academic advisors from Washington University School of Medicine (Everard, Lach, & Heinrich, 2000). OASIS promotes active and productive aging, offering challenging programs in the arts, health, humanities, technology, and volunteer service. Programs are offered through centers in 26 cities across the country, with most located in suburban areas. The mean age of members is 75, more members are women (75%), and most are White (83%).

OASIS centers have offered health classes for more than 15 years, but there was no planned approach to programming, needs assessment, or an evaluation of program effectiveness. Certain topics would be offered because a speaker was available or because a sponsor wanted to promote a certain service. HealthStages was initiated to develop a comprehensive health education strategy to identify and meet the needs of this growing number of older adults.

HealthStages has three components: (a) a comprehensive, state-of-the-art curriculum, (b) a local implementation strategy, and (c) program evaluation. With guidance from our academic advisors, the TTM was adopted as an organizing concept for the program. As HealthStages developed, the TTM concepts were integrated into program planning, curriculum development, and program evaluation. The following describes how the model was incorporated into HealthStages.

*Program planning.* The key TTM concept for organizing HealthStages was the stages of change. According to the TTM, people are in different stages of readiness to change any given health behavior. As a result, different types of information and interventions are needed for people who are in different stages. In addition, people may be in Maintenance for one behavior, like exercise,

but in Contemplation for eating a low-fat diet. Therefore, a range of courses and activities are needed for a variety of different health issues. To incorporate this core concept into the program, we developed a grid (see Figure 1). The HealthStages Grid crosses the stages of change with key health topics to provide a comprehensive framework for health education programming.

By examining the types of courses and activities OASIS offers, we identified four levels of programming. For people in Precontemplation or Contemplation, there are awareness programs such as health fairs or screenings designed to introduce or remind people about various health issues. Individuals in Precontemplation for exercise but in Action for health screening would not normally sign up for an exercise class, but information about the importance of exercise can be given to them at a cholesterol screening or even an art class. They may not have thought about exercising, but the topic is brought to their attention at the health fair. According to the processes of change, providing information to individuals in Precontemplation is an effective strategy for helping them move into Contemplation.

Knowledge programs help people in Contemplation and Preparation change their attitudes or learn what they need to know to make successful changes. For example, women interested in osteoporosis may attend a lecture on the topic to learn about treatments and exercises they can do to help prevent bone loss. Because of the information learned in the lecture, these participants may then be prompted to move into Action and sign up for an exercise class. For people who are ready, skill building and behavior change courses are more intensive and engage people in activities that will improve their health. Maintenance courses provide ongoing support to continue the healthy behaviors. Examples include support groups and ongoing exercise programs.

As a final step in program planning, we examined the frequency of the different levels of programs that were

**TABLE 1**  
**Osteoporosis Courses and Activities to Fit the HealthStages Grid**

<i>Awareness</i>	<i>Knowledge</i>	<i>Skill Building</i>	<i>Maintenance</i>
Bone health fair	Informational brochures	Osteoporosis management class	Ongoing exercise classes
Osteoporosis screening questionnaires	Lectures on osteoporosis, bone strengthening exercises, dietary calcium and supplements, new treatments for osteoporosis, etc.	“Building Bones”—exercise and education program	Walking groups Osteoporosis support group
Bone density testing		Strength training exercise classes	
Screening on intake of dietary calcium		Chronic disease self-management course	

currently offered in several OASIS cities. Two types of classes were common: maintenance classes in the area of physical fitness, and lectures (knowledge level). The general exercise classes are appropriate for helping people who are exercising to maintain that behavior, but they do little for people in Contemplation. Lectures, on the other hand, provide information for helping people in Contemplation move into Preparation and Action. It was also common for sites to offer health fairs and screenings that fit the Awareness portion of our grid. What we found missing were in-depth classes that would teach skills and assist people to move into Action. After reviewing this information about the OASIS sites, the next step was to develop curriculum to fill in the gaps in programming.

*Curriculum development.* Our goal was to develop a menu of classes that would fill out the grid to assure that sites were providing opportunities for people at all stages of change. For each health topic, we identified possible classes and activities that would fit along the continuum of stages. For example, one disease management topic of interest to our members is osteoporosis. Table 1 shows a range of courses that could be offered for individuals in different stages of change to address this important health problem.

Our priority for curriculum development was to fill the gap in skill-building classes we had already identified. For exercise, we determined that the classes currently available fit the Maintenance block on our grid. There were aerobics, line dancing, yoga, and other classes providing variety to support maintenance of exercise that were more appropriate for those who had been exercising for at least 6 months. However, there wasn't a class appropriate for people who were out of shape or who hadn't been exercising. Older adults have a particularly difficult time moving into existing exercise classes where the activities might be too strenuous, or they perceive that other participants are in much better shape. So we developed an introductory exercise class called “ExerStart!” for people in Action who were out of shape or recovering from an injury or illness. The

introductory course is now ongoing in many sites, with a maintenance component for those who kept exercising.

Additional skill-building classes were developed based on members' needs and interests, as well as outside funding availability, including courses on basic nutrition skills, memory improvement, and mental health. To avoid “reinventing the wheel,” we also identified curriculum that had been developed and tested by others. For example, the Chronic Disease Self-Management Course developed by Lorig and colleagues (1999) at the Stanford Patient Education Center has been well tested and fit the needs and objectives of our program. We now include this program in our core curriculum rather than developing our own course to meet this need.

At the same time we were developing courses in specific areas, OASIS identified the need for an introductory class to provide members with the opportunity to assess their health needs and identify areas for improvement. This class, “Taking Charge of Your Health,” was designed to provide information about the process of change and strategies to change behavior. Participants learn skills to improve their success in making changes, including how to set realistic goals. From this class, participants are encouraged to move on to specific classes in exercise, nutrition, mental health, or other activities depending on their personal goals.

Additional information for identifying curriculum content comes from a survey of OASIS members conducted to determine information about members' health status, activities, and health behaviors. The survey included a section measuring stages of change for key health behaviors including exercise and eating a low-fat diet. An example of what we learned from the survey is that we have a higher than average percentage of members in maintenance for regular aerobic exercise (Nigg et al., 1999). However, far fewer participate in stretching or strengthening exercises (Everard, Highstein, Lach, Fisher, & Baum, 1999), which are also important components of fitness (American College of Sports Medicine, 1998). We have identified an opportu-

nity to develop educational strategies to address this need.

*Curriculum content.* Other core constructs from the TTM including decisional balance, self-efficacy, and the processes of change were incorporated into the contents of the core curriculum developed for HealthStages. For example, course participants are encouraged to list all the benefits they will gain from making healthy changes, thus improving their chances of moving toward action. Courses that help people change behavior use techniques to improve participants' self-efficacy. Skill-building classes encourage participants to plan and take small steps so that they can experience success that will translate into motivation for continued progress. Participants are encouraged to practice new behavior and discuss their successes with the group, who can then help with problem solving when challenges are met.

The processes of change such as consciousness raising and reinforcement management are also incorporated into curriculum as appropriate. Awareness activities, such as health fairs, are often designed to raise consciousness and provide information about important health issues for older adults. These activities may include self-assessment for people to identify their own risks, such as a quiz to identify risk factors for osteoporosis or a cholesterol screening. To increase commitment to change, participants in knowledge and skill-building courses learn to set goals. They are encouraged to be specific and write action plans describing what, when, where, and how they will make their change. The action plan also includes strategies that might be helpful, such as substitutions for problem behaviors, ways to avoid or counter problematic situations, and mechanisms for social support. For reinforcement management, participants are encouraged to plan rewards for taking positive steps. The Taking Charge of Your Health class is followed by regular reunion sessions where people can describe their successes and gain positive feedback from the group.

*Program evaluation.* The TTM provides a useful framework for evaluating the HealthStages program at three levels: individual courses, programming at local sites, and the national program. For individual courses, participants complete pre- and posttests to evaluate changes in knowledge, stage of change, self-efficacy, or goal setting, as appropriate to the particular class. For example, the stages for participating in regular exercise, testing of blood sugar, and following a low-fat, moderate-calorie diet were evaluated for participants in a diabetes management course. A preliminary evaluation of the

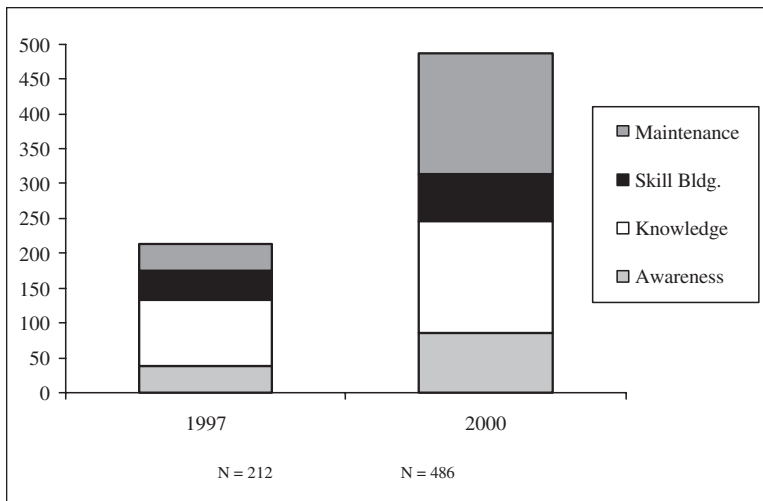


FIGURE 2: Change in Types of Programs From 1997 to 2000 at One HealthStages Site

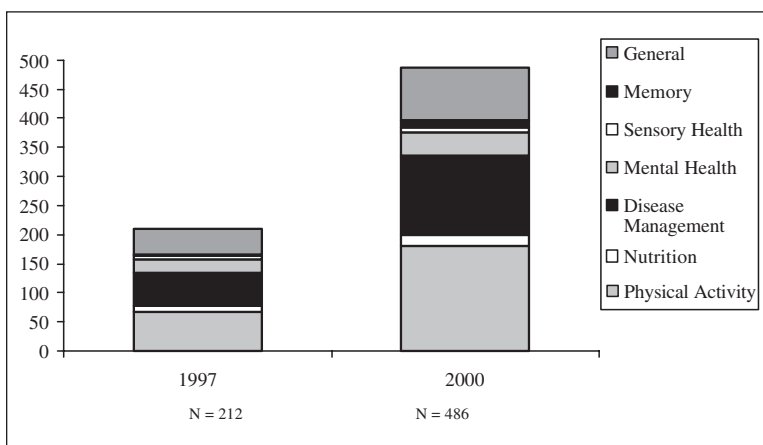


FIGURE 3: Changes in Number of Classes by Health Topic, 1997-2000

pilot diabetes course showed that more than 90% of participants were satisfied with the course and would recommend it to a friend, 81% set goals to improve their diabetes self-management, and 27% showed forward movement through the stages for specific behaviors.

The HealthStages grid provides a method for evaluating the programming at each local site. We can analyze the numbers and types of programs in each square of the grid to determine if a comprehensive program is being offered. For example, we analyzed the changes in health programs in our largest pilot city from 1997 to 2000 (see Figures 2 and 3). The first HealthStages core courses were introduced in the spring of 1997 and were integrated into the usual health programming. The total number of health courses increased over 4 years (from 212 to 486), as did the number of participants. It is important that there was a substantial increase in maintenance courses. Sites are encouraged to use the grid information to identify gaps in local programming for program planning.

The OASIS Institute can use the grid information from all of the HealthStages sites to identify gaps in programming across sites. HealthStages was disseminated to all 26 OASIS cities in the fall of 2001, and grid data from all the sites will be compiled. The information will be used to identify needs for additional curriculum development.

*Challenges.* We identified barriers to providing a comprehensive program at various sites. The size and space of the different facilities can limit the number of participants and types of courses that can be offered. For example, exercise classes need adequate space and because these classes are ideally offered many times during the week, they can compete with other courses for space in the smaller centers. In addition, the members at different centers vary in their interests. Classes may be very successful at some sites and not attract participants at others. Some classes, such as diabetes management, require more specific marketing efforts to reach appropriate participants.

Our materials have been developed for a relatively homogeneous, well-educated group. We hope to pilot test these materials with more diverse populations so that we can identify the adaptations required to reach a wider audience.

As would be expected, most people who attend classes tend to be in Contemplation, Preparation, or Action. Reaching out to people in Precontemplation or people who don't like to attend classes is a difficult challenge that we are trying to address. We recognize the need to develop additional strategies that might be more successful in reaching these people through other formats or channels. For example, sending health information by mail may be helpful in moving someone from Precontemplation to Contemplation.

## ► CONCLUSIONS

In summary, the TTM is a practical theory for health education programs. We have found the TTM to be useful and appropriate for application to health education with older adults for program planning, curriculum development, and program evaluation. Program participants are interested in the model, and strategies from the TTM constructs are woven into the context of all of our materials. HealthStages uses the stages of change model as a guide for addressing the interests and needs of older adults at all stages of readiness behavior change. We find that the framework grid based on the TTM is a helpful tool in planning and evaluating individual courses, local sites, and the national program. The TTM encourages us to develop a variety of ways to reach out to the population. Staging of participants for health behaviors provides a way to target needed interventions to the population. We encourage others responsible for health education, who may not have considered a theoretical framework, to incorporate a theory such as the TTM into their program. Theory can

provide a valuable framework for planning courses, evaluating progress, and potentially expanding the reach of programs to a wider audience of older adults.

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