

Cognitive Behavioral Therapy to Promote Exercise Behavior in Older Adults: Implications for Physical Therapists

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ABSTRACT

Although exercise has both physical and psychological benefits, most older adults do not exercise on a regular basis. Physical therapists need to explore ways to encourage sustained commitment. This article proposes that cognitive factors contribute to older adults' inactivity and that the self-regulation of exercise maintenance model is a means of promoting exercise. Cognitive behavioral therapy (CBT), an intervention guided by the self-regulation model, is presented as a practical way to help older adults see how thoughts guide their exercise behavior. The article concludes with a hypothetical case in which principles of CBT are used to promote exercise with older adults.

Key Words: exercise maintenance, older adults, cognitive behavioral therapy

INTRODUCTION

Although the aging human body experiences decline, the onset and rate of decline depend on both individual genetic predisposition and environmental influences.¹ Regular physical exercise is one way to decelerate the effects of aging. Active older adults are less susceptible than sedentary older adults to disability and loss of functional independence,^{2,4} and to falls and subsequent hip fractures.⁵ Regular exercise can improve cardiovascular function, muscle strength, flexibility, balance, and bone health. Exercise also has psychological benefits enhancing cognitive function, decreasing depression, and improving body image.^{6,7}

Despite the many benefits of exercising, few older adults exercise on a regular basis. According to Healthy People 2010, only 31% of individuals 65 to 74 years of age and 23% of individuals 75 years and older report moderate physical activity (ie, brisk walking, swimming, light yard work, etc.) for 20 minutes 3 or more days per week.⁸ Even fewer (13%) individuals 65 to 74 years of age engage in vigorous physical activity (ie, jogging, running, or cycling) for 20 minutes 3 or

more days a week, and this figure decreases to 6% for individuals 75 years old and older.⁸

Exercise is an important tool used by physical therapists in their work to restore, maintain, and promote optimal physical function.⁹ Because exercise must be maintained to receive maximum physical and psychological benefits,^{6,10-12} physical therapists are challenged to explore reasons why older adults are not exercising and to find interventions that promote exercise maintenance. Schneider proposes that a reason for older adults not exercising may be cognitive and requires a cognitive solution.¹³ Thus a cognitive behavior model may best affect behavior. There are several models that incorporate a cognitive behavioral aspect, including rational emotive behavioral therapy,¹⁴ social cognitive theory,¹⁵ and self-regulation of exercise maintenance model.¹³ As an intervention guided by the self-regulation of exercise maintenance model, cognitive behavioral therapy (CBT) strategies can be used to identify and change behavior. While CBT applies to all ages, the intervention described here focuses on helping older adults identify and change negative or unrealistic thoughts about exercise. As a result of CBT methods, older adults can think more positively about exercise and subsequently maintain their exercise behavior.

Cognitive behavioral therapy has been effectively used to treat depression,¹⁶ panic and phobia,¹⁷ obesity,¹⁸ eating disorders,¹⁹ dual diagnoses,²⁰ dissociative disorders,²¹ and adult attention deficit disorder.²² It has also been used with older adults for depression and the stresses of family caregiving.²³⁻²⁵ Researchers have studied the effects of CBT on exercise in older adults. Rejeski and colleagues²⁶ used CBT with older adults with documented or at high risk for cardiovascular disease who were mainly overweight or obese. Atkins et al²⁷ studied older adults with moderate to severe chronic obstructive pulmonary disease. Jette and colleagues²⁸ used CBT with older adults who reported physical disability in at least one area. At least 2 research groups have used CBT in studies with apparently healthy older adults.^{29,30}

The most consistent findings of CBT were its effects on self-reported exercise behavior. The CBT participants reported more exercise volume (frequency times duration) than the standard²⁹ or control groups.³⁰ When compared to a standard cardiac rehabilitation group, CBT participants reported significantly greater adherence.²⁶ Cognitive behavioral therapy participants reported significantly more minutes of walking per week compared to participants in separate behavioral or cognitive modification interventions.²⁷ Thus, CBT consistently improved self-reported exercise behavior.

The purpose of this article is to introduce the self-regulation of exercise maintenance model and give an overview of CBT. The article then gives practical suggestions for how physical therapists can work with older adults to promote positive thoughts about exercise.

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THE SELF-REGULATION OF EXERCISE MAINTENANCE MODEL

Adapted from Leventhal's work,³¹ the self-regulation of exercise maintenance model^{13,32} suggests that exercise behavior is influenced by interpretations from a variety of sources combined. That is, with every episode individuals have thoughts, emotions, feelings, and sensations related to exercise. Each exercise episode adds new information to existing information that include previous exercise experiences, media messages, health care professional recommendations, and society. Using the aggregate of this information, exercisers may alter goals and change their behaviors. The process is cyclical as additional information is added.^{33,34}

The self-regulation model incorporates previous and current information on a minute-by-minute basis.³⁵ Previous exercise experiences impact interpretations of new experiences. Thus new interpretations influence both current and future exercise behavior. For example, an older woman may feel slight muscle soreness for a brief time after starting a walking program. She may interpret this symptom as abnormal and a sign that her muscles are injured and decide to discontinue her walking program, thinking she is too old. On the other hand, she may interpret the symptom as a healthy response to exercise and continue the walking program.

Interpretation of exercise in the self-regulation model occurs at 2 levels: (1) general, distal, or remote and (2) episode-specific, immediate.¹³ Both affect exercise behavior.

Interpretations at the general level involve long-term information accumulated from previous exercise episodes. These interpretations include the overall meaning of exercise and beliefs, attitudes, and experiences outside of the exercise episode. At the episode-specific level, older adults interpret exercise behavior during and immediately after each episode of exercise. Episode-specific interpretations may quickly change and alter immediate exercise behavior. In other words, episode-specific interpretations have a direct effect on behavior. For example, older individuals experiencing a slight shortness of breath during exercise may choose to stop exercising if they interpret the symptom as harmful. On the other hand, they may continue to exercise if they interpret it as a symptom of improving their fitness.

General interpretations differ from episode-specific interpretations in that they are more stable and are influenced by experiences outside of exercise. For example, an older man may interpret a single episode of exercise as difficult and uncomfortable at the episode-specific level, but when considering his overweight friend's slow, painful recovery from heart surgery, this older man may interpret exercise at the general level as a way to stay healthy.

Episode-specific interpretations may affect general interpretations. For example, people who have negative episode-specific interpretations of sweating and shortness of breath may develop a general interpretation of exercise as hard work. Others however, who interpret these sensations positively, may come to the general belief that exercise is a recreational activity. In other words, individuals' exercise (episode-specific) experiences influence their (general) attitudes and beliefs about exercise.

COGNITIVE BEHAVIORAL THERAPY INTERVENTIONS

Because episode-specific interpretations are immediate, they can be changed more readily than general interpretations, making episode-specific interpretations a prime target for intervention. Cognitive behavioral therapy, which is consistent with the self-regulation of exercise maintenance model, posits that thoughts or cognitions (interpretations) mediate behavior.³⁶ The 3 fundamental propositions of CBT are: (1) cognitions affect behavior (self-regulation), (2) cognitions (interpretations) may be monitored and altered, and (3) behavior change may be produced through cognitive change (self-regulation).

The CBT intervention is presented in a group format. The 3 goals are to: (1) encourage participants to establish realistic exercise goals that incorporate personal information; (2) demonstrate techniques in the group that would help participants reach their goals; and (3) use the group as a way to highlight the common struggle of remaining active. The facilitator provides information about exercise while encouraging participants to use this information for personal growth. The participants are taught that if they identify and monitor unrealistic thoughts about exercise, they might increase their satisfaction and compliance with a regular exercise regimen.

The initial sessions of the group focus on acquainting members with the group and introducing concepts related to the cognitive-behavioral intervention. The facilitator uses specific exercise examples to help participants see how thoughts influence exercise behavior. Participants would be asked to keep a log of their thoughts about exercise, the situations in which the thoughts occurred, and their subsequent behavior (see Table). These thoughts may be positive or negative. For example, while exercising at home in front of a window a participant may feel, "I am so relaxed, I am actually enjoying my exercise while viewing all the beauty of spring." Another participant may notice some tightness in her back and think, "I need to get the kinks out." She subsequently tells herself that she "must do some gentle stretching."

Table. Example of a Thought Log

Exercise situation	Thoughts about the situation	My behavior
Very warm summer's day. It is too hot to exercise outside.	I'll go to the mall and walk laps. I'll take my walkman to help pass time.	I walked 2 miles and listened to a book on tape!
Very busy day of volunteer work. Didn't get home until 5:00 pm.	Exercising takes too much work. I'll take a nap and eat dinner. Maybe I'll exercise tomorrow.	I did not exercise today. Maybe I should have thought "Since today was very busy and I plan to walk tomorrow morning I can still do 20 minutes of the band exercises while I watch TV."
My friend just called to say she isn't feeling well and can't walk with me today.	I'm disappointed but I think I need to walk today even if by myself.	I walked for 20 minutes around my neighborhood by myself.

At the beginning of each group session, participants share their thought logs with the group. By discussing each others' logs, participants receive a broad picture of the types of personal situations that lend themselves to unrealistic thoughts. With this knowledge, they practice generating alternative thoughts and develop a plan of action to think differently, and to use these new thoughts to behave differently in real life situations. For instance, some older adults are disappointed when they tire after 10 minutes of exercise believing they should be able to exercise longer. With the help of the group and its facilitator, participants learn to recognize these negative thoughts, put them in context, and think of other, more realistic thoughts. For example, the older adult might think, "Yes, I would like to exercise longer. However, I am making progress. Last week I could only exercise for 5 minutes."

After participants become familiar with basic CBT concepts, group sessions focus on setting short- and long-term goals. Participants learn how to incorporate specific, measurable, and realistic goals into busy schedules. Practical barriers to achieving goals are addressed. For example, some older adults care for their young grandchildren or cannot afford a gym membership fee. Discussion of practical barriers would allow participants to hear different approaches to coping with these problems and also have an added bonus of encouraging them to learn from each other. Through group discussion, for example, participants learn about free neighborhood walking programs and time management techniques that accommodate a daily exercise routine.

IMPLICATIONS FOR PHYSICAL THERAPY

Physical therapists may want to consider incorporating principles of CBT into their fitness practice with older adults. First, they will need to become familiar with the theory behind CBT. They may then start with some simple strategies in a group format or on an individual basis. The following is a hypothetical case that illustrates how a physical therapist could use CBT in a fitness program with an older adult.

Mrs. T is 68 years of age, 64 inches tall, and weighs 155 lbs (15 pounds of which she gained in the past 2 years). Her latest cholesterol level was high and her primary care physician recommended that she start taking a cholesterol lowering medication. In addition, Mrs. T shows mild osteoarthritic changes in her fingers and knees that causes some stiffness when she awakes in the morning. She continues to work full-time at a sedentary job.

Mrs. T's home is near a traditional physical therapy outpatient practice. Recently the facility established a fitness center at the same site. A physical therapist designs and monitors the fitness program. Classes are structured biweekly for 8 weeks; then Mrs. T can have the option to continue a membership at the center on an independent basis. Mrs. T's physician gives her medical clearance to take part in the program.

During the first session, the physical therapist talks about normal aging, principles of fitness, benefits of exercise and diet, and safety precautions when exercising. At this time the therapist also helps Mrs. T identify her general interpretations about exercise by asking about her motivation and barriers to exercise. Mrs. T says, "I should exercise more, but I just can't

seem to find the time to fit it in my schedule. My daughter works odd shifts, so I am always picking up my grandkids from school or taking them to different functions. I know that exercise is good for me, but I am frustrated that it has to be a lifetime effort, especially now that I have high cholesterol. My goal is to make exercise a daily routine. I just can't understand why I get a good start at it and then stop."

During the first session, the therapist also talks about thoughts and how they are the driving force behind behavior. She explains that a unique focus of this fitness program will be to use the beginning of each session to look at thoughts about exercise and recognize those that might be negative or unrealistic. The therapist explains that this approach is part of CBT. After each exercise session, Mrs. T is asked to record her specific thoughts and reactions to that particular exercise session. In addition, the physical therapist asks Mrs. T to keep a weekly log that tracks any other exercise situation, her thoughts about the situation, and her subsequent behavior.

During the first week Mrs. T notes in her log that she cancels walking over the weekend for various reasons. Writing these reasons down surprises her. For example, she cites inclement weather, not having enough time, and not wanting to change into exercise clothes as different reasons. She becomes more conscious of why she is not consistent. Recording her thoughts becomes easier during the next few weeks. Her physical therapist assures her that some 'negative' thoughts about exercise are valid, too. The pain that Mrs. T occasionally experiences in her knees while exercising can be reframed to more positive thoughts. For example, "This stiffness is part of my arthritis. If I exercise carefully, this will be good for my arthritis. So I will continue to slowly stretch and try not to sit as much during the day."

The logs also help Mrs. T focus on a recurring thought that exercise is basically overwhelming, especially if she has to do it on a daily basis. She tries to look at the thought more positively by reframing it in some way. For example, she writes next to the thought "Although I find it hard to exercise everyday it helps me to do exercise the first thing in the morning and not put it off the whole day. Once I start doing my exercises I actually feel better. Maybe I need to just take one day at a time."

At the end of the program the physical therapist asks Mrs. T to talk about her general thoughts about exercise, how the program has helped her, and her plans for the future. The therapist asks her questions such as, "What exercise barriers have you overcome?" and "What types of information do you still need about how to exercise safely?" They also review the thought logs that she filled out at the beginning and at the end of the program. The therapist asks Mrs. T to talk about how she viewed exercise before the program, how she views exercise now that she has finished the program, and the strategies she used for reframing unrealistic thoughts about exercise.

During the last session, Mrs. T also notes that keeping track of the times she exercises has been useful so she plans to continue to mark this on her calendar for reinforcement. She decides to continue exercising at the facility on a self-paced basis. She signs up to receive a 'wellness newsletter'

that provides motivational stories, new insights on exercise and aging, suggestions to overcome barriers to exercise, and helps for her to re-examine thoughts about exercise and her own exercise goals.

SUMMARY

Cognitive behavioral therapy can be another tool for promoting physical activity. By incorporating concepts of CBT into their fitness practice, physical therapists can help older adults see the connection between their thoughts about exercise and their behavior. Ultimately, the time spent on CBT may help reach the *Healthy People 2010* goal of increasing the percentage of older adults who participate in regular physical activity.⁸

REFERENCES

1. Bottomley JM, Lewis CB. *Geriatric Rehabilitation A Clinical Approach*. 2nd ed. Upper Saddle River, NJ: Prentice Hall; 2003.
2. Cox CB. *The Frail Elderly: Problems, Needs, and Community Responses*. Westport, Conn: Greenwood Publishing Group, Inc; 1993.
3. Stuck A, Walthert J, Nikolaus T, Bula C, Hohmann C, Beck J. Risk factors for functional status decline in community-living elderly people: a systematic literature review. *Soc Sci Med*. 1999;48:445-469.
4. Brown M. Strength training and aging. *Top Geriatr Rehabil*. 2000;15:1-5.
5. Holdrup S, Sorensen TI, Stroger U, Lauritzen JB, Schroll M, Gronbaek M. Leisure-time physical activity levels and changes in relation to risk of hip fracture in men and women. *Am Epidemiol*. 2001;154:60-68.
6. American College of Sports Medicine. Exercise and physical activity for older adults. *Med Sci Sports Exerc*. 1998;30:992-1008.
7. Singh MAF. Exercise comes of age: rationale and recommendations for a geriatric exercise prescription. *J Gerontol A Biol Sci Med Sci*. 2002;57A:M262-M282.
8. U.S. Department of Health and Human Services. *Healthy People 2010*. 2nd ed. Washington, DC: US Government Printing Office; 2000.
9. *Guide to Physical Therapist Practice*. 2nd ed. Alexandria, VA: American Physical Therapy Association; 2001.
10. Mirotznik J, Feldman L, Stein R. The health belief model and adherence with community center-based, supervised coronary heart disease exercise program. *J Community Health*. 1995;20:233-247.
11. Robinson JI, Rogers MA. Adherence to exercise programmes: recommendations. *Sports Med*. 1994;17:39-52.
12. Stoffelmayr BE, Mavis BE, Stachnik T, et al. A program model to enhance adherence in work-site-based fitness programs. *J Occup Med*. 1992;34:156-161.
13. Schneider JK. Qualitative descriptors of exercise in older women. *J Aging Phys Act*. 1996;4:251-263.
14. Ellis A. Changing rational-emotive therapy (RET) to rational emotive behavioral therapy (REBT). *J Ration-Emotive Cogn Behav Ther*. 1995;12:85-89.
15. Bandura A. Health promotion from the perspective of social cognitive theory. *Psychol Health*. 1998;13:623-649.
16. White JR. Depression. In: White JR, Freeman AS, eds. *Cognitive-behavioral Group Therapy for Specific Problems and Populations*. Washington, DC: American Psychological Association; 2000:29-62.
17. Lang AJ, Craske MG. Panic and phobia. In: White JR, Freeman AS, eds. *Cognitive-behavioral Group Therapy for Specific Problems and Populations*. Washington, DC: American Psychological Association; 2000:63-98.
18. Radomile RR. Obesity. In: White JR, Freeman AS, eds. *Cognitive-behavioral Group Therapy for Specific Problems and Populations*. Washington, DC: American Psychological Association; 2000:99-126.
19. Bowers WA. Eating disorders. In: White JR, Freeman AS, eds. *Cognitive-behavioral Group Therapy for Specific Problems and Populations*. Washington, DC: American Psychological Association; 2000:127-148.
20. Greanias T, Siegel S. Dual diagnoses. In: White JR, Freeman AS, eds. *Cognitive-behavioral Group Therapy for Specific Problems and Populations*. Washington, DC: American Psychological Association; 2000:149-174.
21. McCutchen AJ. Dissociative disorders. In: White JR, Freeman AS, eds. *Cognitive-behavioral Group Therapy for Specific Problems and Populations*. Washington, DC: American Psychological Association; 2000:175-210.
22. Morgan WD. Adult attention deficit disorder. In: White JR, Freeman AS, eds. *Cognitive-behavioral Group Therapy for Specific Problems and Populations*. Washington, DC: American Psychological Association; 2000:211-234.
23. Gallagher-Thompson D, Coon DW, Rivera P, Powers D, Zeiss AM. Family caregiving: stress, coping, and intervention. In: Hersen M, Van Hasselt VB, eds. *Handbook of Clinical Geropsychology*. New York, NY: Plenum Press; 1998:469-493.
24. Knight BG, Satre DD. Cognitive behavioral psychotherapy with older adults. *Clin Psychol*. 1999;6:188-203.
25. Thompson LW, Powers DV, Coon DW, Takagi K, McKibbin C, Gallagher-Thompson D. Older adults. In: White JR, Freeman AS, eds. *Cognitive-behavioral Group Therapy for Specific Problems and Populations*. Washington, DC: American Psychological Association; 2000:235-262.
26. Rejeski WJ, Foy CG, Brawley LR, et al. Older adults in cardiac rehabilitation: a new strategy for enhancing physical function. *Med Sci Sports Exerc*. 2002;34:1705-1713.
27. Atkins CJ, Kaplan RM, Timms RM, Reinsch S. Behavioral exercise programs in the management of chronic obstructive pulmonary disease. *J Consult Clin Psychol*. 1984;52:591-603.
28. Jette AM, Lachman M, Giorgetti MM, et al. Exercise-it's never too late: the strong-for-life program. *Am J Public Health*. 1999;89:66-72.
29. Brawley LR, Rejeski WJ, Lutes L. A group-mediated cognitive behavioral intervention for increasing adherence to physical activity in older adults. *J Appl Behav Res*. 2000;5:47-65.
30. Schneider JK, Mercer G, Herning M, Smith C, Davis M. Promoting exercise behavior in older adults: using a cognitive behavioral intervention. *J Gerontol Nurs*. 2004;30:45-53.

31. Leventhal H. Behavioral medicine: psychology in health care. In: Mechanic D, ed. *Handbook of Health, Health Care, and the Health Professions*. New York, NY: Free Press; 1983:709-743.
32. Schneider JK. Self-regulation and exercise behavior in older women. *J Gerontol B Psychol Sci Soc Sci*. 1997; 95B(5):P235-P241.
33. Carver CS, Scheier. *Attention and Self-Regulation: A Control-Theory Approach to Human Behavior*. New York, NY: Springer-Verlag; 1981.
34. Leventhal H, Cameron L. Behavioral theories and the problem of compliance. *Patient Educ Couns*. 1987;10:117-138.
35. Leventhal H, Nerenz DR, Steele DJ. Illness representations and coping with health threats. In: Baum A, Singer J, eds. *Handbook of Psychology and Health*. Hillsdale, NJ: Erlbaum; 1983:219-252.
36. Dobson KS, Block L. Historical and philosophical bases of the cognitive-behavioral therapies. In: Dobson KS, ed. *Handbook of Cognitive-Behavioral Therapies*. New York, NY: Guilford Press; 1988:3-38.


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