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# EFFECTS OF TEACHING RESOURCEFULNESS AND ACCEPTANCE ON AFFECT, BEHAVIOR, AND COGNITION OF CHRONICALLY ILL ELDERERS

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## Abstract

This clinical trial examined changes in affect, behavior, and cognition in 176 chronically ill elders who were randomly assigned to Resourcefulness Training (RT), Acceptance Training (AT), or Diversional Activities (DA). The RT group improved on affect ( $t(1,42) = 4.91; p < .001$ ) and cognition ( $t(1,42) = 2.03; p < .05$ ) and these effects lasted 12 weeks. The AT group improved on affect ( $t(1,36) = 3.08; p < .01$ ), but this improvement did not persist. The RT and AT groups both showed positive behavior changes after six weeks. There were no changes in the DA group. The findings suggest that teaching elders resourcefulness and acceptance of chronic conditions may promote healthy functioning and improve their quality of life.

Today, more than 35 million Americans are age 65 or older, and this number is expected to more than double within the next 35 years ([Hetzel & Smith, [2001](#); [Rice & Fineman, [2004](#)]). Given the greater longevity of the population, it is not surprising that the number of elderly persons with chronic illnesses also is increasing ([Wagner, Austin, Davis, Hindmarsh, Schaefer, & Bonomi, [2001](#)]). A decade ago, 79% of non-institutionalized elders aged 70 years and older reported at least one of the most common chronic conditions—heart disease, osteoarthritis, cancer, and stroke ([Administration on Aging, [2003](#)]; [Chodosh et al., [2005](#)]). Now, at least 88% of American elders have one chronic condition and 50% have two or more ([Centers for Disease Control and Prevention, [2005](#)]).

Although not all chronic illnesses are life threatening, they are incurable and they place significant burdens on the health, economic status, and quality of life of older adults, their families, and their communities ([Dunlop, Manheim, Sohn, Liu, & Chang, [2002](#)]; [Rice & Fineman, [2004](#)]). Chronic illnesses negatively affect the psychological well-being of older adults ([Yang & George, [2005](#)]), and they can cause years of pain, disability, loss of function, and ultimately a loss of independent living ([Dunlop et al., [2002](#)]; [Wolff, Boulton, Boyd, & Anderson, [2005](#)]). One of elders' greatest fears is being dependent on others as a result of chronic illness, and in susceptible individuals, this may precipitate depression ([Gignac, Cott, & Badley, [2000](#)]).

Declines in physical health and capabilities as a result of chronic illness produce a need for formal or informal caregiving ([LaPlante, Harrington, & Kang, [2002](#)]). However, it is difficult for many elders to find care in the community because of the social life changes that accompany aging. As a result, over 1 million American elders are living in assisted living facilities that provide services or assistance with self-care, including ambulation, movement, toileting, or instrumental activities of daily living, including preparing meals, shopping, managing money, and housework ([Assisted Living Federation of America, [2005](#)]). Assisted living facilities are home-like residential programs that provide care, as needed, for persons with disabilities and functional limitations. They have been found to be effective in enabling residents to maintain function or cope with functional decline, and they have beneficial effects on physical and mental well-being ([Fonda, Clip, & Maddox, [2002](#)]).

The positive effects of cognitive behavioral programs on the psychological and functional well-being of people with chronic diseases are well-documented. Researchers have found that interventions based on the principles of social learning and self-regulation brought about improvements in medical, emotional, functional, and psychosocial outcomes ([Moore, Von Korff, Cherkin, Saunders, & Lorig,

[2000](#)). For example, a study conducted to examine the effects of a self-management program on patients with chronic conditions found that the program maintained health benefits while reducing symptoms, activity limitations, and health care costs ([Lorig, Sobel, Ritter, Laurent, & Hobbs, [2001](#)]). In another study, patients with chronic systemic lupus erythematosus who attended self-management classes increased in skills, self-efficacy, and self-worth and decreased in uncertainty and depression over time ([Braden, [1991](#)]). Chodosh J., Morton S. C., Mojica W., Maglione M., Suttorp M. J., Hilton L., et al. Meta-analysis: Chronic disease self-management programs for older adults. *Annals of Internal Medicine* 2005; 143: 427–438, who conducted a meta-analysis to assess the effectiveness of self-management programs for hypertension, osteoarthritis, and diabetes mellitus, concluded that self-management interventions helped in both controlling blood glucose level and reducing blood pressure ([Chodosh et al., [2005](#)]).

However, while numerous studies have shown the effectiveness of cognitive-behavioral programs in enhancing personal functioning, few have examined the effects of resourcefulness and acceptance on affect, behavior, and cognitions in chronically ill elders. Resourcefulness is a cognitive behavioral repertoire of self-control skills accompanied by a belief in one's ability to cope effectively with adversity; these skills are used to regulate stressful feelings and thoughts that might otherwise interfere with the performance of target behaviors and tasks ([Rosenbaum, [1990](#)]). Resourcefulness has been shown to promote healthy, independent, and productive life styles in older adults ([Intieri & Rapp, [1994](#)]). Furthermore, older adults with greater resourcefulness have been shown to have better adaptive functioning, feel more satisfied with their lives, and deal with life events more effectively ([Zauszniewski, [1994](#)], [[1995](#)], [[1996](#) Zauszniewski J. A. Self-help and help-seeking behavior patterns in healthy elders. *Journal of Holistic Nursing* 1996; 14(3)223–236], [[1997b](#)]). Studies also have found that resourcefulness helped chronically ill patients cope better with their disabilities, perform self-help behaviors, and have a more independent, healthy, and productive life style ([Aikens, Wallander, Bell, & Cole, [1992](#)]; [Braden, [1990](#)]).

Acceptance, or acknowledgment, of chronic disease and its consequences, also has been found to be a significant predictor of well-being in elders ([Ranzijn & Luszcz, [1999](#)]). Acceptance can provide relief from the negative affect and sense of helplessness that may accompany a stressful situation that cannot be changed ([Thompson, Nanni, & Levine, [1994](#)]). Acceptance of chronic illness can thus facilitate personal growth and increase self-worth and self-awareness ([Haase, Britt, Coward, Leidy, & Penn, [1992](#)]). A positive relationship has been found between acceptance and coping capabilities in persons with insulin-dependent diabetes mellitus ([Richardson, Adner, & Nordstrom, [2001](#)]), and between acceptance and better psychological outcomes for HIV-positive men ([Thompson et al., [1994](#)]). Studies also have shown that acceptance of pain predicts better adjustment in all areas of patient function, independent of perceived pain intensity ([McCracken, [1998](#)]).

Although some studies have investigated the effects of resourcefulness and acceptance on individuals' ability to cope with adversity, no studies have examined the effects of resourcefulness and acceptance training on affect, behavior, and cognition in chronically ill elders residing in assisted living facilities (ALFs). This study looked at the immediate, lagged, and extended effects of resourcefulness and acceptance training on negative affect, functional behavior, and depressive cognitions in chronically ill elders living in ALFs. The study was based on [[Hornby's \(1990\)](#)] theory of human functioning, according

to which people who are fully functioning live life spontaneously even when risks are involved, consider honesty and creativity as a way of life, are unafraid to make difficult decisions, and realize that moving forward is not easy and may involve risks. From Hornby's perspective, affect, behavior, and cognition are key dimensions of functioning, and change in one component will contribute to change in another.

## METHODS

### Design

Data for the study were obtained from a larger clinical trial that examined the effects of providing small group activities for chronically ill elders in ALFs. That trial has been reported elsewhere ([McDonald et al., [2004](#)]; [Zauszniewski, Eggenschwiler, Preechawong, Roberts, & Morris, [2006](#)]; Zauszniewski, Krafcik et al., 2004). Randomly selected ALFs were randomly assigned to receive either acceptance training (AT) or resourcefulness training (RT) or to participate in diversional activities (DA). Each ALF was assigned to only one treatment (AT, RT, or DA). Residents recruited in each ALF participated in the treatment assigned to that ALF. Data were collected before the elders participated in 6 weeks of AT, RT, or DA, upon conclusion of AT, RT, or DA, and at 6 and 12 weeks afterwards. The study examined changes in affect (negative emotions), behavior (functioning), and cognition (depressive cognitions) in the three groups over time.

### Setting

Assisted living, as defined by the state of Ohio, involves a combination of housing and personal support services that may include assistance with daily activities, medication management, and nutritional support ([Thompson, [2006](#)]). Assisted living is provided in a variety of settings, ranging from senior apartments to continuing care communities ([Powers, [2006](#)]). ALFs for this study were randomly selected from approximately 85 retirement communities in Northeast Ohio that include 5,000 assisted living spaces for older adults ([Powers, [2006](#)]). Approximately 4,000 elders currently reside in these facilities, which vary in size from 30 to 900 units. The ALFs are located in both urban and suburban areas and house elders over the age of 65 years, regardless of race, color, or religious affiliation ([Powers, [2006](#)]). Seventeen ALFs were selected for this study. The 17 ALFs used for this analysis consisted of all ALFs that were randomly assigned to AT, RT, or DA in the larger clinical trial from which the data for this analysis were obtained.

### Sample

The convenience sample included 176 older adults who resided in the 17 randomly selected assisted living facilities in Northeast Ohio. To be included, elders had to have the ability to read, understand, and speak English; be receiving services or assistance with self-care, including ambulation, movement, or toileting, or with instrumental activities of daily living, including preparing meals, shopping, and housework; and be cognitively intact, as determined by a score of 7 out of 10 on the Short Portable Mental Status Questionnaire (SPMSQ; [Pfeiffer, [1975](#)]). Potential participants were referred to the study by the facility personnel, who were aware that cognitively impaired elders were not eligible for

the study; all referred individuals met the cutoff of a score of 7 on the SPMSQ. No one was excluded on the basis of gender, race/ethnicity, or socioeconomic status. Participant retention at 12 weeks post-intervention was 68% ( $n = 120$ ). Reasons for attrition included increased illness or disability (12%), relocation to a nursing home (2%), and loss of interest in participation in group activities (18%).

## Instruments

Three quantitative measures were used to examine the study outcomes (affect, behavior, and cognition) and two were used to examine the fidelity of the interventions (RT and AT). In addition, a demographic questionnaire was used to record age, gender, race, and number and type of chronic conditions. Number and type of chronic conditions were measured using a 26-item checklist developed by [Fillenbaum \(1988\)](#) as the measure of the physical health component of the Older Adults Resources and Services (OARS) Multidimensional Functional Assessment Questionnaire (MFAQ). Test-retest reliability for this study sample after six weeks was acceptable ( $r = .50, p < .001$ ).

To compare the effects of RT and AT with DA, three outcomes reflecting the key dimensions of human functioning identified in [Hornby's \(1990\)](#) theory were examined: affect (negative emotions), behavior (functional behavior), and cognitions (depressive cognitions).

Negative emotions were measured by the Emotional Symptom Checklist (ESC) developed by the investigators. The ESC assesses the presence of ten negative emotions within the past two weeks that may be risk factors for more serious depressive symptoms and are not fully captured by standard measures: anxiousness, nervousness, tension, worry, anger, restlessness, irritability, sadness, loneliness, and unhappiness. For each symptom experienced, respondents receive one point; for a symptom they do not experience, they receive zero points. Total scores can range from 0 to 10, with higher scores indicating more negative emotions. In a sample of 314 elders with chronic conditions, Cronbach's alpha of .76 provided evidence of internal consistency, and significant correlations between the ESC and the State Anxiety Inventory (STAI A-State) ( $r = .58, p < .001$ ) and the Center for Epidemiological Studies Depression Scale (CES-D) ( $r = .59, p < .001$ ) provided evidence of construct validity ([Zauszniewski, Morris, Preechawong, & Chang, [2004](#)]). Cronbach's alpha with this sample was .73.

Functional behaviors were measured by the Health Assessment Questionnaire (HAQ; [Fries, [1996](#)]), which assesses daily functioning in eight areas: dressing/grooming, arising, eating, walking, hygiene, reaching, gripping, and outdoor activities; each area includes 2–3 questions. Participants rate their functioning during the past week on a 4-point scale ranging from without any difficulty (0) to unable to do (3) and complete a checklist of aids used or assistance received. The highest scores for the eight components are added for a total score ranging from 0 to 24; higher scores indicate poorer functioning. The HAQ has been widely used and there is substantial evidence of reliability and validity ([Ramey, Raynauld, & Fries, [1992](#)]). Cronbach's alpha for the HAQ with this sample was .86.

Depressive cognitions were measured by the Depressive Cognition Scale (DCS; [Zauszniewski, [1995](#)]). The DCS is an 8-item instrument on which respondents use a 6-point Likert scale from strongly agree (5) to strongly disagree (0) to indicate the degree to which a particular statement describes their

current thoughts. Each item reflects one depressive cognition (e.g., hopelessness, worthlessness, etc.); however, the items are phrased positively so that strong disagreement with an item indicates the presence of a depressive cognition. Scores may range from 0 to 40, and when scoring is reversed, higher scores indicate more depressive cognitions. Scores approaching 40 indicate negative cognitions that may precede clinical depression. In a study with community elderly, [\[Zauszniewski \(1995\)\]](#) reported acceptable internal consistency ( $\alpha = .78$ ) and construct validity, using a measure of psychosocial attributes and development, the Modified Eriksonian Psychosocial Stage Inventory ([Darling-Fisher & Leidy, [1988](#)]). In a follow-up study, also with community dwelling elders, [\[Zauszniewski \(1997a\)\]](#) demonstrated construct validity for the DCS by significant correlations in the expected directions ( $p < .001$ ) with measures of depression, resourcefulness, adaptive functioning, and life satisfaction ( $r_s = .54, -.37, -.60, -.57$ , respectively). Confirmatory factor analysis indicated the presence of a single factor with all item loadings exceeding .30; 40% of the total variance was explained. Cronbach's alpha with this sample was .89.

To ensure the fidelity of the two interventions, RT and AT, reliable and valid measures of resourcefulness and acceptance were used before the intervention and at three post-intervention data points: immediately post-intervention and at 6 and 12 weeks.

The fidelity of the resourcefulness training (RT) intervention was determined by comparing baseline scores on a measure of resourcefulness, the Self-Control Schedule (SCS), with scores obtained immediately post-intervention and at 6 and 12 weeks in elders who participated in the RT intervention and supplied data at each of the four measurement points ( $n = 43$ ). The SCS consists of 36 Likert-type items. Participants indicate the degree to which each item describes their behavior on a 6-point scale, ranging from very much like me (5) to not at all like me (0). Scores may range from 0 to 180; higher composite scores, after reverse scoring for 11 items negatively phrased, indicate greater resourcefulness. Internal consistency estimates ranging from .75 to .85 have been reported in studies with older adults ([Zauszniewski, [1997a](#)] [[1997b](#)]). Cronbach's alpha in this sample was .72. Construct validity has been demonstrated by significant correlations between the SCS and self-ratings of resourcefulness ( $r = .35$ ), psychosocial attributes ( $r = .60$ ), depression ( $r = -.30$ ), adaptive functioning ( $r = .45$ ), and life satisfaction ( $r = .38$ ) ([Zauszniewski, [1997b](#)]). Elders receiving RT were expected to improve in resourcefulness skills over time.

The fidelity of the Acceptance Training (AT) intervention was determined by comparing the baseline scores on the measure of acceptance with scores obtained immediately post-intervention and at 6 and 12 weeks in elders who participated in AT intervention and supplied data at each of the four measurement points ( $n = 37$ ). The "Ideas about Long-Standing Health Problems" (IALSHP) measure of acceptance was adapted from the Ideas About Diabetes-Revised (IAD-R) questionnaire ([Dion, [1990](#)]) by replacing the word "diabetes" with "long-standing health problem." The IALSHP contains 20 statements that measure acceptance of the implications of long standing health problems. Respondents are asked to indicate their agreement with the statements on a 5-point Likert scale ranging from strongly agree (4) to strongly disagree (0). Acceptable psychometric properties have been documented ([McDonald et al., [2004](#)]). Cronbach's alpha with this sample was .83. Construct validity has been demonstrated by significant correlations between the IALSHP and measures of depressive cognitions ( $r = -.61, p < .001$ ) and self-assessed health ( $r = .58, p < .001$ ) ([McDonald et al., [2004](#)]).

## Interventions

Elders participated in six, weekly, 2-hour small group sessions of Resourcefulness Training (RT), Acceptance Training (AT), or Diversional Activities (DA). The ALFs were randomly assigned to only one treatment (AT, RT, or DA). RT was a short-term, structured, time-limited intervention that taught and reinforced the cognitive behavioral skills constituting personal and social resourcefulness. Personal resourcefulness skills included coping strategies, problem-solving, positive self-talk, priority setting, and decision-making. Social resourcefulness skills involved teaching elders when and how to seek help from formal (i.e., professional) and informal (i.e., family, friends) sources. Application of these skills was focused on strengthening and maximizing the use of internal (self-help) and external (help-seeking) resources for maintaining optimal healthy functioning. Among those who received RT, mean scores on the SCS showed a steady increase over time and paired *t*-tests showed significant improvements at 6 weeks ( $t(1,42) = -2.37, p < .05$ ), and at 12 weeks ( $t(1,42) = -3.16, p < .01$ ). Similar improvements in resourcefulness did not occur in the older adults who received AT or those who participated in DA. Thus, the fidelity of the RT intervention was clearly demonstrated.

AT was a short-term, structured, time-limited intervention that applied the techniques of rational emotive behavioral therapy and guided imagery to help elders accept their chronic conditions. Rational-emotive behavioral therapy, a form of cognitive behavioral therapy, provided the basis for group counseling with an emphasis on recognizing rational and irrational beliefs and learning to dispute irrational beliefs about chronic conditions. Using guided imagery, study participants were encouraged to visualize a chronic health problem. This process focused on improving their self-understanding and enhancing their ability to live with their chronic condition(s). Among those who received AT, paired *t*-tests showed significant improvements in acceptance of chronic conditions immediately post-intervention ( $t(1,36) = -3.00, p < .01$ ), at 6 weeks ( $t(1,36) = -2.74, p < .01$ ), and at 12 weeks ( $t(1,36) = -3.32, p < .01$ ). Similar trends did not occur in the older adults who received RT or in those who participated in DA. Thus, the fidelity of the AT intervention also was demonstrated.

## Comparison Group

A comparison group of older adults participated for six weeks in diversional activities (DA) that included playing cards, bingo, lotto, dominoes, and word games. There was no discussion of health-related matters or coping strategies before, during, or after the diversional activity sessions.

## Procedures

Following approval for protection of human subjects and informed consent, data were collected during individual, face-to-face, structured interviews conducted by trained data collectors in a private setting at a mutually agreed upon time. During the initial interview, information on demographic characteristics (age, gender, and race) and number and type of chronic conditions was obtained and the participants completed structured measures of the study variables. Within two weeks of the initial interview, 8 to 13 subjects within each ALF participated in six weekly group sessions of AT, RT, or DA.

Within a week after the 6-week intervention, participants were interviewed a second time; the third and fourth interviews took place 6 weeks and 12 weeks post-intervention.

## Data Analysis

Descriptive statistics, including means and standard deviations, were examined for acceptance and resourcefulness as well as on the outcome variables of interest—negative emotions, functional behavior, and depressive cognitions—to determine the shape of the distributions at baseline. Correlations among negative emotions, functional behavior, and depressive cognitions were examined to determine whether relationships among these variables supported [\[Hornby's \(1990\)\]](#) theory. Specific trends within each treatment group on the measures of these variables were examined by paired *t*-tests. Between group differences were investigated using analysis of variance with a priori and post hoc comparisons.

## RESULTS

The ages of the elders who participated in the study ranged from 64 to 96, with an average of 83 years. About 79% of the sample were women ( $n = 139$ ) and 21% were men ( $n = 37$ ). The great majority (90%) were Caucasian ( $n = 159$ ); 9% ( $n = 16$ ) were African American, and one was American Indian. These demographic characteristics reflected those of elderly residents of ALFs in Northeast Ohio. On average, the elders reported having three chronic conditions; the most commonly reported were arthritis (64%), high blood pressure (47%), heart trouble (36%), circulation problems (31%), and urinary tract disorders (26%). There were no significant differences across the 17 ALFs on demographic characteristics and chronic conditions. Among those in the three treatment groups who completed all four data collections, there were no significant demographic differences at baseline on measures of acceptance, resourcefulness, negative emotions, functional behavior, or depressive cognitions (see Table 1).

**TABLE 1 Baseline Statistics for Elders Completing all Data Points ( $n = 120$ )**

	AT	RT	DA	
	Mean	Mean	Mean	
Variable	( $n = 37$ )	( $n = 43$ )	( $n = 40$ )	F-test
Acceptance	70.98	70.82	72.63	0.621
Resourcefulness	128.13	129.54	130.88	0.275
Negative affect	2.27	2.72	2.37	0.575
Functional behavior	8.79	7.81	7.23	1.296
Depressive cognitions	7.90	9.77	8.51	

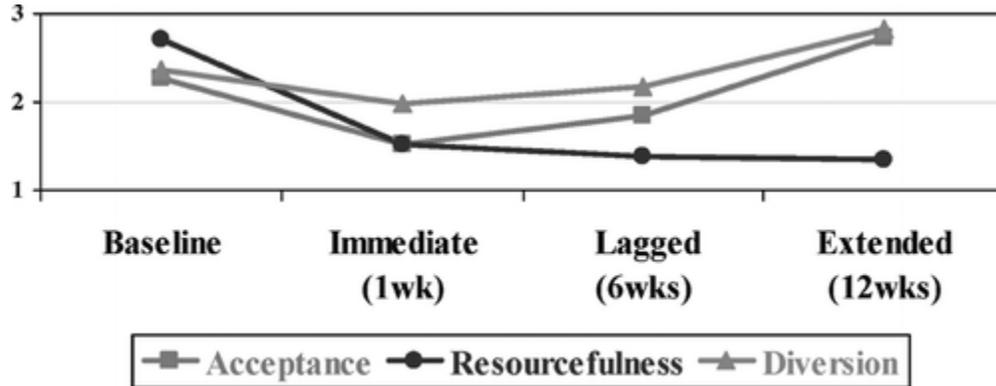
Note. No significant differences among the three groups at baseline.

To determine whether associations among the measures of negative emotions, functional behavior, and depressive cognitions were significant, as [Hornby's \(1990\)](#) theory of personal functioning suggests, Pearson's correlations were computed. The measures were all correlated significantly ( $p < .001$ ); correlations between negative emotions and functional behavior, negative emotions and depressive cognitions, and functional behavior and depressive cognitions were  $r = .26$ ,  $r = .25$ , and  $r = .32$ , respectively.

## Effects on Affect

Both AT and RT were expected to reduce the negative emotions of elders with chronic conditions, while no effects were expected to occur in elders who participated in DA. Lower scores on the measure indicated more positive emotions. As shown in [Figure 1](#), elders in the AT and RT intervention groups improved in their affect immediately following the 6-week programs,  $t(1,36) = 3.08$ ,  $p < .01$  and  $t(1,42) = 4.91$ ,  $p < .001$ , respectively. However, while the affect of elders in the RT group continued to improve at 6 and 12 weeks, ( $t(1,42) = 4.48$ ,  $p < .001$  and  $t(1,42) = 5.12$ ,  $p < .001$ , respectively), the effect of AT did not persist over time ( $t(1,36) = 0.61$ ,  $p > .05$  at 6 weeks and  $t(1,36) = -1.51$ ,  $p > .05$  at 12 weeks). Elders in the DA group showed no significant changes in affect over time ( $t(1,39) = 1.15$ ,  $p > .05$  immediate post-intervention;  $t(1,39) = 0.38$ ,  $p > .05$  at 6 weeks; and  $t(1,39) = -0.90$ ,  $p > .05$  at 12 weeks). Oneway ANOVA with contrasts showed significant between-group differences at 12 weeks post-intervention ( $F(2,119) = 3.48$ ,  $p < .03$ ), and post hoc Dunnett's test indicated that these between-group differences were accounted for by the differences between RT and DA ( $p < .04$ ).

**FIGURE 1** Effects of interventions on negative affect over time.



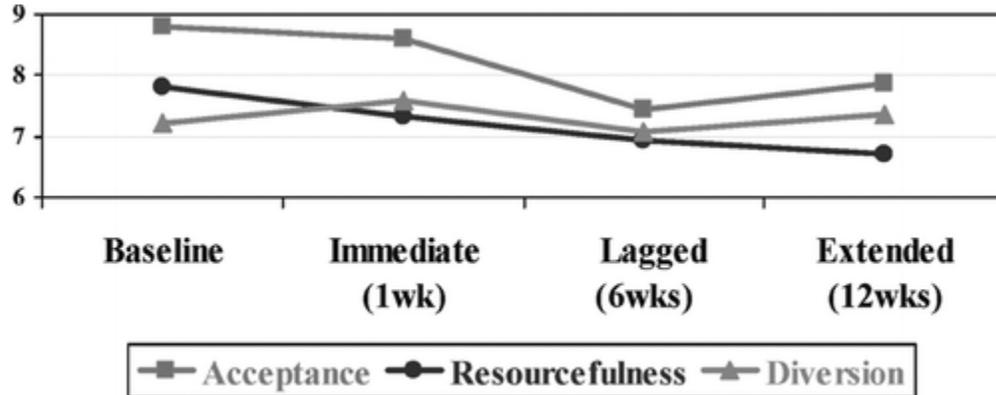
Note: Higher scores indicate more negative affect

A  $3 \times 4$  mixed design ANOVA tested the effects of the three treatment conditions (AT, RT, and DA) and the effects of time (baseline, immediate post-intervention, and 6 and 12 weeks post-intervention) on affect scores. The main effect of time was significant ( $F(3,351) = 7.12, p < .001$ ), while the effect of treatment condition was not ( $F(2,117) = 0.47, p > .05$ ). However, a significant time  $\times$  group interaction was found ( $F(6,351) = 5.75, p < .001$ ). Elders in the RT group showed the most consistent improvement in affect over time ([Figure 1](#)).

## Effects on Behavior

Both AT and RT were expected to enhance the functional behaviors of elders with chronic conditions, while no effects were expected to occur in elders who participated in DA. Lower scores on the measure of functional behavior indicated better functioning. As shown in [Figure 2](#), the elders in both the AT and RT groups showed no significant improvement in functional behavior immediately following the 6-week programs,  $t(1,36) = 1.34, p > .05$  and  $t(1,42) = 1.18, p > .05$ , respectively. However, significant improvements in functioning were found in the AT and RT groups at 6 and 12 weeks post-intervention (lagged and extended effects). For the AT group,  $t(1,36) = 4.00, p < .001$  at 6 weeks and  $t(1,36) = 2.49, p < .02$  at 12 weeks. Similarly, for the RT group:  $t(1,42) = 2.19, p < .03$  at 6 weeks and  $t(1,42) = 2.15, p < .04$  at 12 weeks. Elders in the DA group showed no significant changes in functional behavior over time ( $t(1,39) = -1.82, p > .05$  immediate post-intervention;  $t(1,39) = -1.47, p > .05$  at 6 weeks; and  $t(1,39) = -1.93, p > .05$  at 12 weeks). Oneway ANOVA with contrasts showed no significant between group differences on functional behavior over time.

**FIGURE 2** Effects of interventions on functional behavior over time.



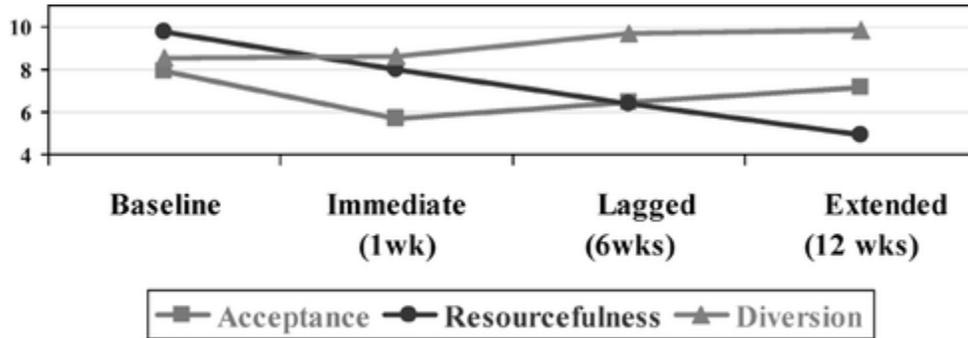
Note: Higher scores indicate more impaired functional behavior

A 3 × 4 mixed design ANOVA tested the effects of the three treatment conditions (AT, RT, and DA) and the effects of time (baseline, immediate post-intervention, and 6 and 12 weeks post-intervention) on functional behavior scores. The main effect for time was significant ( $F(3,351) = 3.70, p < .01$ ). However, the main effect for treatment condition was not significant ( $F(2,117) = 0.64, p > .05$ ). Nevertheless, a significant time × group interaction was found ( $F(6,351) = 3.17, p < .01$ ). Elders in the AT and RT groups showed consistent improvements in functional behavior up to 6 weeks post-intervention. The positive effects of RT on functional behavior persisted for 12 weeks post-intervention (Figure 2).

## Effects on Cognition

Both AT and RT were expected to decrease the depressive cognitions of elders with chronic conditions, while no effects were expected to occur in elders who participated in DA. Lower scores on the measure of cognitions indicated more positive cognitions. As shown in Figure 3, elders in the AT intervention group improved in their cognition immediately following the 6-week program, but the improvement was not significant ( $t(1,36) = 1.51, p > .05$ ). Further, the effect of AT on cognition did not persist over time ( $t(1,36) = 0.65, p > .05$  at 6 weeks and  $t(1,36) = -0.17, p > .05$  at 12 weeks). Elders in the RT intervention group reported more positive cognitions immediately following the 6-week program ( $t(1,42) = 2.03, p < .05$ ) and at 6 and 12 weeks post-intervention ( $t(1,42) = 3.98, p < .001$  and  $t(1,42) = 4.98, p < .001$ , respectively). Although the elders in the DA group showed no significant improvement in their cognitions, there was some evidence of an increase in depressive cognitions from baseline to immediately post-intervention ( $t(1,39) = -1.96, p = .057$ ) and there were significant increases in depressive cognitions at 6 and 12 weeks post-intervention ( $t(1,39) = -2.62, p < .02$  and  $t(1,39) = -2.43, p < .02$ , respectively). Oneway ANOVA with contrasts showed significant between group differences at 12 weeks post-intervention ( $F(2,119) = 3.76, p < .03$ ). Post hoc Dunnett's test indicated that these between group differences were accounted for by the differences between RT and DA ( $p < .02$ ).

**FIGURE 3** Effects of interventions on depressive cognitions over time.



Note: Higher scores indicate more depressive cognitions

A 3 × 4 mixed design ANOVA tested the effects of the three treatment conditions (AT, RT, and DA) and the effects of time (baseline, immediate post-intervention, and 6 and 12 weeks post-intervention) on cognition scores. The main effect for time was not significant ( $F(3,351) = 0.30, p > .05$ ) and the main effect for treatment condition was also not significant ( $F(2,117) = 0.96, p > .05$ ). However, a significant time × group interaction was found ( $F(6,351) = 7.17, p < .001$ ). Elders in the RT group showed the most consistent improvement in cognition over time (Figure 3).

## DISCUSSION

This study represents the first attempt to examine the immediate (1 week), lagged (6 weeks), and extended (12 weeks) effects of resourcefulness and acceptance training on affect (negative emotions), behavior (functioning), and cognitions (depressive cognitions) in chronically ill elders residing in assisted living facilities. The RT group improved immediately on affect ( $t(1,42) = 4.91; p < .001$ ) and cognition ( $t(1,42) = 2.03; p < .05$ ), and these effects lasted 12 weeks. The AT group also improved immediately on affect ( $t(1,36) = 3.08; p < .01$ ), but this effect did not persist. Both the RT and AT groups showed positive functional behavior changes at 6 and 12 weeks. The DA group had no positive changes in affect, behavior, or cognition. At 12 weeks post-intervention, significant group differences were found in affect ( $F(2,119) = 3.48; p < .03$ ) and cognition ( $F(2,119) = 3.76; p < .03$ ), but not behavior. That is, post hoc comparisons (Dunnett's t-tests) of RT and AT with DA showed significant differences between RT and DA on affect ( $p < .04$ ) and cognition ( $p < .02$ ), but not behavior.

Thus, RT improved affect and cognition and these effects lasted 12 weeks. While there was no significant improvement in behavior immediately after the RT, a significant improvement in functioning was found at 6 and 12 weeks post-intervention. The results of this study are consistent with [Hornby's \(1990\)](#) theory, which proposes that a change in either the affective, cognitive, or behavioral component facilitates change in the entire system. The results are also consistent with a study by [Zauszniewski \(1997a\)](#), which found that elders who received 6-week resourcefulness training scored significantly higher on post-measures of resourcefulness, adaptive functioning, and life satisfaction. Similarly, the results are consistent with studies that found that resourcefulness helped chronically ill

patients cope better with their disabilities, perform self-help behaviors, and have a more independent, healthy, and productive life style ([Aikens et al., [1992](#)]; [Braden, [1990](#)]).

Since RT had early effects on affect and cognition (immediately post-intervention), and effects on behavior emerged later, affective or cognitive variables may have served as a mediator of the effect of RT on behavior. These positive effects of resourcefulness are supported by [\[Rosenbaum's \(1990\)\]](#) view of the beneficial effects of resourcefulness on affect, behavior, and cognition and [\[Zauszniewski's \(2006\)\]](#) mid-range theory of resourcefulness. The AT group improved immediately on affect but this did not persist. Bolstering the strength of the intervention by conducting more than six, weekly, 2-hour sessions may be necessary to produce an extended effect.

Given the attrition rate of 32% over the five month study, and especially considering that the reason for 18% of the dropouts was loss of interest in group activities, the positive effects found for acceptance and resourcefulness training may only be generalizable to chronically ill elders who enjoy group activities. Nevertheless, many elders in ALFs are at risk for a variety of physical and functional limitations that can reduce their ability to lead independent and fulfilling lives, thus they might benefit from learning acceptance and resourcefulness. [\[Ryan \(2000\)\]](#) suggests that teaching strategies for managing chronic conditions must be tailored to the individual's lifestyle and fit with the elder's routines and preferences. Future research should therefore examine the development and testing of individualized approaches to acceptance and resourcefulness training.

Despite its limitations, this study suggests that teaching resourcefulness skills and acceptance of chronic conditions to older adults may promote positive affect and cognition and improve functional behavior. Affect, behavior, and cognition have long been recognized as key components of psychiatric nursing assessment ([Boyd, [2004](#)]; [Stuart & Laraia, [2004](#)]) and major mechanisms of psychotherapeutic change (Corsini & Wedding, 2000). In general, psychotherapists agree that thoughts, feelings, and actions are integrated expressions of underlying personality, and that change in one will bring about changes in the others ([Hornby, [1990](#)]). For example, cognitive-behavioral therapy, a form of psychotherapy commonly used by advanced practice psychiatric nurses, focuses on integrating the client's thoughts (cognitions), feelings (affect), and behaviors in order to manage psychiatric symptoms ([Jones, [2005](#)]).

Improvements in affect, behavior, and cognitions should be monitored over time to determine their long-term stability and the need for booster sessions. There also is a need for continued development and testing of interventions such as resourcefulness training with more diverse samples of elders with chronic illness. Clearly, resourcefulness training and acceptance training can be used by psychiatric nurses as therapeutic interventions to facilitate and maintain independence and healthy functioning in older adults.

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## REFERENCES

- 1 Administration on Aging. Evidenced-based disease prevention program fact sheet. U.S. Department of Health and Human Services. 2003, <http://www.aoa.gov/prof/evidence/evidence.asp> Retrieved March 17, 2006, from
- 2 Aikens J. E., Wallander J. L., Bell D. S., Cole J. A. Daily stress variability, learned resourcefulness, regimen adherence, and metabolic control in type 1 diabetes mellitus: Evaluation of a path model. *Journal of Consulting and Clinical Psychology* 1992; 60(1)113–118
- 3 Assisted Living Federation of America. Guide to choosing and assisted living residence. 2005, <http://www.alta.org> Retrieved March 17, 2006, from
- 4 Boyd M. A. *Psychiatric nursing: Contemporary practice*, 3rd ed. Lippincott, Williams, and Wilkins, Philadelphia 2004
- 5 Braden C. J. A test of the self-help model: Learned response to chronic illness experience. *Nursing Research* 1990; 39(1)42–47
- 6 Braden C. J. Patterns of change over time in learned response to chronic illness among participants in a systemic lupus erythematosus self-help course. *Arthritis Care Research* 1991; 4(4)158–167
- 7 Centers for Disease Control and Prevention. Health information for older adults. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, Atlanta, GA 2005
- 8 Chodosh J., Morton S. C., Mojica W., Maglione M., Suttorp M. J., Hilton L., et al. Meta-analysis: Chronic disease self-management programs for older adults. *Annals of Internal Medicine* 2005; 143: 427–438
- 9 *Current psychotherapies*, 6th ed., R. J. Corsini, D. Wedding. Peacock, Itasca, IL
- 10 Darling-Fisher C. S., Leidy N. K. Measuring Eriksonian development in the adult: The modified Erikson Psychosocial Stage Inventory. *Psychological Reports* 1988; 62(3)47–54
- 11 Dion G. A. Testing of an instrument to measure acceptance of diabetes: Ideas about Diabetes-Revised (IAD-R). Louisiana State University, New Orleans, Louisiana 1990, Unpublished doctoral dissertation
- 12 Dunlop D. D., Manheim L. M., Sohn M. W., Liu X., Chang R. W. Incidence of functional limitation in older adults: The impact of gender, race, and chronic conditions. *Archives of Physical Medicine and Rehabilitation* 2002; 83: 964–971
- 13 Fillenbaum G. G. *Multidimensional functional assessment of older adults: The Duke Older Americans Resources and Services procedures*. L. Erlbaum Associates, Hillsdale, NJ 1988
- 14 Fonda S. J., Clipp E. C., Maddox G. L. Patterns in functioning among residents of an affordable assisted living housing facility. *The Gerontologist* 2002; 42(2)178–187
- 15 Fries J. F. Physical activity, the compression of morbidity, and the health of the elderly. *Journal of the Royal Society of Medicine* 1996; 89(2)64–68
- 16 Gignac M. A., Cott C., Badley E. M. Adaptation to chronic illness and disability and its relationship to perceptions of independence and dependence. *Journal of Gerontology* 2000; 55B(6)P362–P372
- 17 Haase J. E., Britt T., Coward D. D., Leidy N. K., Penn P. E. Simultaneous concept analysis of spiritual perspective, hope, acceptance and self-transcendence. *Journal of Nursing Scholarship* 1992; 24: 141–147

- 18 Hetzel L., Smith A. The 65 years and over population: 2000. U.S. Department of Commerce, Economics and Statistics Administration, Washington, DC 2001
- 19 Hornby G. A humanistic developmental model of counseling: A psychoeducational approach. *Counseling Psychology Quarterly* 1990; 3(2)191–203
- 20 Intieri R., Rapp S. Self-control skillfulness and caregiver burden among help-seeking elders. *Journals of Gerontology: Psychological Sciences* 1994; 49: 19–23
- 21 Jones A. Perceptions on individualized approaches to mental health care. *Journal of Psychiatric and Mental Health Nursing* 2005; 12: 396–404
- 22 LaPlante M. P., Harrington C., Kang T. Estimating paid and unpaid hours of personal assistance services in activities of daily living provided to adults living at home. *Health Services Research* 2002; 37(2)397–415
- 23 Lorig K. R., Sobel D. S., Ritter P. L., Laurent D., Hobbs M. Effect of self-management program on patients with chronic disease. *Effective Clinical Practice* 2001; 4(6)256–262
- 24 McCracken L. M. Learning to live with the pain predicts adjustment in persons with chronic pain. *Pain* 1998; 74: 21–27
- 25 McDonald P. E., Zauszniewski J. A., Chang H. J., Preechawong S., Morris D. L., Eggenschwiler K., et al. The effects of acceptance training on psychological and physical health outcomes in older adults with chronic conditions [abstract]. *Proceedings from the 28th Annual Conference of the Midwest Nursing Research Society. MNRS, St. Louis, MO 2004*
- 26 Moore J. E., Von Korff M., Cherkin D., Saunders K., Lorig K. A randomized trial of a cognitive-behavioral program for enhancing back pain self-care in primary care settings. *Pain* 2000; 88: 145–153
- 27 Pfeiffer E. Successful aging: The possible dream—successful nursing homes: The not impossible dream. *Journal of Long Term Care Administration* 1975; 3(3)16–21
- 28 Powers L. *Senior living guide: A comprehensive guide for choosing a retirement community.* Guide Publishing, Chagrin Falls, OH 2006
- 29 Ramey D. R., Raynauld J. P., Fries J. F. The health assessment questionnaire 1992: Status and review. *Arthritis Care and Research* 1992; 5(3)119–129
- 30 Ranzijn R., Luszcz M. Acceptance: A key to well-being in older adults?. *Australian Psychologist* 1999; 34(2)94–98
- 31 Rice D. P., Fineman N. Economic implications of increased longevity in the United States. *Annual Review of Public Health* 2004; 25: 457–473
- 32 Richardson A., Adner N., Nordstrom G. Persons with insulin-dependent diabetes mellitus: Acceptance and coping ability. *Journal of Advanced Nursing* 2001; 33(6)758–76
- 33 Rosenbaum M. *Learned resourcefulness on coping skills, self-control, and adaptive behavior.* Springer, New York 1990
- 34 Ryan P. *Facilitating behavior change in chronically ill persons. Coping with chronic illness: Overcoming powerlessness, 3rd ed., J. F. Miller.* F.A. Davis, Philadelphia 2000; 481–505
- 35 Stuart G. W., Laraia M. T. *Principles and practice of psychiatric nursing, 8th ed.* Elsevier Health Sciences, St. Louis 2004
- 36 Thompson J. What is assisted living?. 2006, <http://www.ohioassistedliving.org/whatisal.html> Retrieved June 9, 2006, from

- 37 Thompson S. C., Nanni C., Levine A. Primary versus secondary and central versus consequence related control in HIV-positive men. *Journal of Personality and Social Psychology* 1994; 67(3)540–547
- 38 Wagner E. H., Austin B. T., Davis C., Hindmarsh M., Schaefer J., Bonomi A. Improving chronic illness care: Translating evidence into action. *Medicine & Chronic Illness* 2001; 20(6)64–7
- 39 Wolff J. L., Boulton C., Boyd C., Anderson G. Newly reported chronic conditions and onset of functional dependency. *Journal of the American Geriatrics Society* 2005; 53: 851–855
- 40 Yang Y., George L. K. Functional disability, disability transitions, and depressive symptoms in late life. *Journal of Aging and Health* 2005; 17(3)263–292
- 41 Zauszniewski J. A. Health-seeking resources and adaptive functioning in depressed and nondepressed adults. *Archives of Psychiatric Nursing* 1994; 8(3)159–168
- 42 Zauszniewski J. A. Development and testing of a measure of depressive cognitions in older adults. *Journal of Nursing Measurements* 1995; 3(1)31–41
- 43 Zauszniewski J. A. Self-help and help-seeking behavior patterns in healthy elders. *Journal of Holistic Nursing* 1996; 14(3)223–236
- 44 Zauszniewski J. A. Teaching resourcefulness skills to older adults. *Journal of Gerontological Nursing* 1997a; 23(2)14–20
- 45 Zauszniewski J. A. Evaluation of a measure of learned resourcefulness for elders. *Journal of Nursing Measurement* 1997b; 5(1)71–86
- 46 Zauszniewski J. A. Resourcefulness. *Encyclopedia of nursing research*, J. J. Fitzpatrick. Springer, New York 2006; 256–528
- 47 Zauszniewski J. A., Eggenschwiler K., Preechawong S., Roberts B. L., Morris D. L. Effects of teaching resourcefulness skills in elders. *Aging and Mental Health* 2006; 10(4)1–9
- 48 Zauszniewski J. A., Krafcik K., Preechawong S., Chung C., Airey T., Wilke P., et al. Focused reflection: Reminiscence for elders using specific themes and visual images. *Journal of the Applied Gerontology* 2004b; 23(4)429–442
- 49 Zauszniewski J. A., Morris D. L., Preechawong S., Chang H. J. Reports on depressive symptoms in older adults with chronic conditions. *Research and Theory for Nursing Practice* 2004a; 18(2–3)185–196