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The Effect of Acceptance Training on Psychological and Physical Health Outcomes in Elders with Chronic Conditions

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This pilot trial investigated the short and long-term effects of Acceptance Training (ACT) intervention on acceptance, perceived health, functional status, anxiety, and depression in elders with chronic conditions living in retirement communities (RCs). The ACT intervention combined Rational Emotive Behavior Therapy with music, relaxation, and guided imagery during six weekly 2-hour sessions. Face-to-face interviews were conducted with 16 African-American and 46 White elders across four data collection points in six randomly selected RCs using well-established measures of perceived health, functional status, anxiety, and depression, and a measure of acceptance of chronic conditions adapted from a previous measure of acceptance of diabetes. While changes were found in perceived health, functional status, anxiety, and depression, the most significant changes occurred in the elders' acceptance of chronic conditions immediately after the intervention (t = -2.62, p < .02), and these changes persisted for 6 and 12 weeks (t's = -2.74, -3.32, p's < .01), respectively. Although a 40% attrition rate reduced the sample size from 62 (N = 62) to 37 (N = 37), the significant increases in acceptance over time provide initial evidence for the fidelity of the ACT intervention.

Key Words: acceptance of chronic conditions, older adults, physical health, psychological health

Introduction

The population of older adults is increasing at a rapid rate. By the year 2030, it is estimated that 70 million older adults will reach the age of 65 years and older (Merck Institute of Aging & Health, Centers for Disease Control and Prevention, & Gerontological Society of America,

2004). Aging increases vulnerability to chronic disease (Rice & Fineman, 2004; Moore, Rosenberg, & Fitzgibbon, 1999) and 80% of elders 65 years of age and older have at least one chronic condition (Centers for Disease Control, 2011). The chronic conditions that occur most frequently are arthritis (49%), hypertension (36%), hearing impairments (30%), heart disease (27%), cataracts (17%), orthopedic impairments (18%), sinusitis (12%), and diabetes (10%) (Tepper & Cassidy, 2004).

Background and Significance

Chronic conditions are accompanied by many challenges and losses (Rice & Fineman, 2004; Yang & George, 2005). They can cause functional limitations in different domains and can lead to depression and anxiety (Pecci, 2007; Dunlop, Manheim, Sohn, Liu, & Chang, 2002; Gignac, Cott, & Badley, 2000). Valderrama-Gama and colleagues (2002) conducted a study to determine the association between chronic diseases and disability in a sample of 772 elders who were 65 years of age and older. The results indicated that cerebrovascular disease, depression and anxiety disorders, as well as diabetes were the conditions that were most clearly related to disability.

Given the disabilities and functional limitations imposed on elders by chronic illness, it is critical to assess their health as part of their care. In fact, the measurement of self-assessed health is receiving growing attention (Damian, Ruigomez, Pastor, & Martin-Morena, 1999), becoming a central feature of gerontological research, and represents the individual's overall sense of physical well being (Pinquart, 2001). Subjective rating of health is regarded as a valid indicator of health status and self-rated health has been

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associated with objective health, functional decline, and mortality, and is also related to the use of health services (Liang at al., 2005; Idler & Benyamini, 1997; Pinquart, 2001).

Statistics have shown that approximately half of the elderly are not able to perform some daily activities and suffer from anxiety, depression, and decline in physical function (Kahn, 1994; Kaplan & Strawbridge, 1994). The acceptance of one's chronic conditions as a circumstance in one's life may be important for managing chronic illness (Linkowski, 1971). Acceptance of chronic illness has been defined as fully participating in life by taking control over illness-imposed limitations (Kintner, 1997). Acceptance has also been conceptualized as the desire to take possession of one's illness (Kintner, 1997; McDonald, Wykle, Misra, Suwannaroop, & Burant, 2002). In a qualitative study (Kintner, 1997) with six asthmatic adolescents, data generated suggested that the process of gaining acceptance included awareness, acknowledgement, health behaviors, acquisition of knowledge, resignation, reasoning, drawing of conclusions, and finally acceptance by taking control of the asthma. According to Haase, Britt, Coward, Leidy, and Penn (1992), acceptance can facilitate personal growth, manifested as increased self-worth and self-awareness. Stuifbergen and Rogers (1997) found that acceptance was an antecedent to health promotion and quality of life for persons with chronic disabling conditions.

Ranzijn and Luszcz (1999) have argued that older adults frequently accept age-related changes as a normal process of aging, suggesting that acceptance is a critical factor in maintaining their wellbeing. In addition, Ranzijn and Luszcz (1999) found that both acceptance and self-rated health were good predictors of wellbeing in a sample of community-dwelling adults from 72 to 105 years of age. Furthermore, studies have found that diabetic patients who had a greater acceptance of their condition had better coping capabilities (Richardson, Adner, & Nordstrom, 2001; Detaille, Haafkens, Hoekstra, & van Dijk, 2006) and a better quality of life (Van Damme, Crombez, Van Houdenhove, Mariman, & Walter, 2006). Acceptance has been found to be related to greater emotional stability and less psychological distress as well (Van Damme et al., 2006).

In elderly persons with chronic conditions, acceptance of the loss of physical capabilities and the psychological implications of not being fully functional can be a major challenge. Acceptance Training (ACT), a biopsychosocial strategy designed to increase acceptance of chronic conditions, may help people to accept their chronic conditions or disability as events that cause ups and downs in their lives (Ellis & Robb, 1994); furthermore, the ACT may help them to recognize that these chronic conditions need not severely or permanently affect their ability to perform daily activities. However, the concept of acceptance has received little attention in gerontological research.

Theoretical Framework

The biopsychosocial model (Boyd, 2002) provided the basis for designing the ACT intervention that was tested in this study. This model uses a holistic approach, consisting of three separate but interdependent domains: biologic, psychological, and social (Boyd, 2002; Zauszniewski, Suresky, Bekhet, & Kidd, 2007). Although the knowledge and focus of the domains are different, they can interact with each other. In this study, the ACT intervention reflects the three interdependent domains constituting the biopsychosocial model.

Biologic interventions focus on physical functioning and are directed toward the patient's self-care, activities and exercise, sleep, nutrition, relaxation, hydration, thermoregulation and, finally, pain and medication management (Boyd, 2002; Zauszniewski, Suresky, Bekhet, & Kidd, 2007). The psychological domain involves emotion, behavior, and cognition. The nurse-patient relationship serves as the basis for interventions in this domain. The psychological domain may include counseling, conflict resolution, bibliotherapy, reminiscence, behavior therapy (i.e., behavior modification), cognitive interventions, psychoeducation, health teaching, and spiritual interventions (Boyd, 2002; Zauszniewski, Suresky, Bekhet, & Kidd, 2007). The social domain incorporates the person's environment, which may affect his or her reactions to chronic conditions and stress. Interventions in the social domain may be directed toward couples, families, friends, and social groups, with special attention to ethnicity and community interactions. Interventions that affect the patient's environment, such as modifying the environment to promote positive behavior or helping caregivers in decision-making for a patient in long-term care, also fall within the social domain. Interventions in the social domain include milieu therapy, safety, home visits, group, family, and community actions.

In fact, several studies used a combination of domains in their interventions. For example, some studies reported biopsychological, biosocial, psychosocial, or biopsychosocial interventions. One study was conducted by Roper and Manela (2000) and combined all three domains examining whether interventions that altered the environment could reduce psychiatric patients' perceptions of waiting time in psychiatric emergency services. Interventions included the use of relaxing music, educational videos, and recreation-

Figure 1. Integration of Study Variables based on Boyd's (2002) Biopsychosocial Model
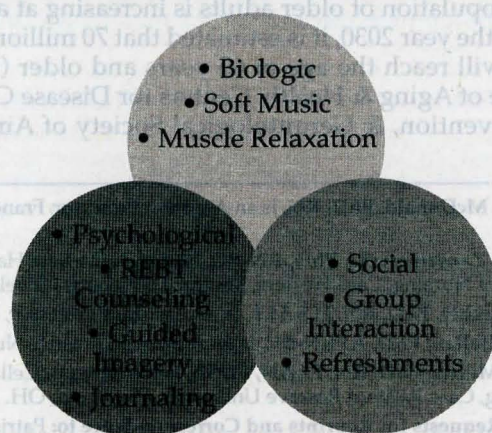
al activities. The study found that these interventions were helpful in reducing patients' perceived wait time and in conveying concern and caring.

Purpose of the Study.

When considering elders' health conditions and other life circumstances, selection of a nursing strategy involves integrating biologic, psychological, and social interventions into a comprehensive plan (see Figure 1). This pilot study, therefore, examined the immediate, lagged, and extended effects of a holistic nursing intervention, Acceptance Training (ACT), on the acceptance of chronic conditions, psychological health outcomes (anxiety and depression), and physical health outcomes (self-rated health and functional status) in elders who reported at least one chronic condition and who were residing in retirement communities (RCs) in northeastern Ohio. The overall research question guiding the study had three components:

What were the immediate, lagged, and extended effects of Acceptance Training on: (1) acceptance of chronic conditions; (2) psychological health outcomes (depression and anxiety); and, (3) physical health outcomes (self-rated health and functional status) for elders residing in retirement communities (RCs)?

Methodology

Design, Sample and Setting

This pilot study examined the immediate, lagged, and extended effects of Acceptance Training (ACT) on acceptance of chronic conditions, and psychological and physical health outcomes in 16 African-American ($n = 16$) and 46 White ($n = 46$) older adults. The study was part of a larger longitudinal study of elders residing in retirement communities (RCs) in northeastern Ohio. A convenience sample of 62 residents ($N = 62$) was recruited from six randomly selected RCs. A concerted effort was made to recruit African-Americans even though the high costs of RCs frequently precluded their residence in RCs. Potential subjects were identified by administrators from the various facilities. Face-to-face meetings were then used to recruit subjects. To be included, the residents had to report at least one chronic condition and receive services or assistance with at least one activity of daily living and/or instrumental activity of daily living, including ambulation, toileting, meal preparation, shopping, and housework; as well as having the ability to read, understand, and speak English. In addition, the older adults had to be cognitively intact as determined by a score of 7 or higher on the 10-item Short Portable Mental Status Questionnaire (SPMSQ) (Pfeiffer, 1975). No subjects were excluded on the basis of gender, race/ethnicity, or socioeconomic status. The attrition rate was approximately 40% with 5 males and 18 females, including 16 who were White and 7 who were African-American, dropping out at Time 2, and two additional females, including one African-American and one White, who dropped out at Time 3. Subjects frequently missed attendance at the treatment groups due to illness or hospitalization. One subject died during the study from a stroke.

Table 1. Characteristics of the Sample

Variables	African-American ($n = 16$)	White ($n = 46$)	Total ($N = 62$)
Age (Mean and SD) Range	76.06 (7.66) (64-91)	83.96 (5.97) (64-96)	81.92 (7.27) (64-96)
Gender			
Male	3 (18.8%)	5 (10.9%)	8 (12.9%)
Female	13 (81.3%)	41 (89.1%)	54 (87.1%)
Chronic Conditions			
Arthritis[a]	11 (68.8%)	35 (76.1%)	46 (74.2%)
High Blood Pressure[a]	16 (100.0%)	20 (43.5%)	36 (58.1%) **
Heart Trouble[b]	4 (25.0%)	21 (45.7%)	25 (40.3%)
Circulation Problems[a]	5 (31.3%)	12 (26.1%)	17 (27.4%)
Diabetes[b]	5 (31.3%)	5 (10.9%)	10 (16.1%)

** $p < .01$
[a] Some cells have expected count less 5
[b] No cells have expected count less 5

Characteristics of the sample are summarized in Table 1. Chi-square analysis showed no significant gender differences between African-Americans and Whites. All subjects reported at least one chronic condition, with arthritis being the most frequently reported (74.2%) (see Table 1).

Intervention

An Acceptance Training (ACT) intervention was developed by the first author to help elderly persons living in RCs to accept their chronic conditions. The ACT intervention was a 2-hour group session provided for six consecutive weeks. The sessions were conducted by a trained nurse clinician in small groups of 7 to 11 older adults. Refreshments were served to the participants during each session fostering cohesion among group members.

The ACT intervention employed a two-pronged biopsychosocial strategy, combining group counseling during the first hour with music, relaxation, and guided imagery during the second hour. The goal of both strategies was to facilitate acceptance of chronic conditions and to offer new kinds of possibilities despite health deficits. Participants also maintained a written journal during the weekly sessions in which they highlighted their positive, personal qualities.

The group counseling, which was based on Ellis' (1989) theory of Rational Emotive Behavioral Therapy (REBT), taught participants the A-B-C-D-E components of per-

sonality. "A" was the activating event or the older adult's self-reported long-standing health problem. "B" was the person's beliefs about the activating event. "C" was the emotional and behavioral consequences of the beliefs. "D" was the disputing or dispelling of irrational beliefs about long-standing health problems. "E" represented the effects of disputing irrational beliefs. Essentially, elders were encouraged to give up their "disapproval" of chronic illness symptoms and were helped to accept "good" and "bad" days as general life conditions.

Guided imagery was adapted for use in older adults with chronic conditions. During the guided imagery component of ACT, participants were encouraged to use their imagination in visualizing a chronic health problem (Naparstek, 1993). The guided imagery script included four themes: (1) enlarging the scope of personal values; (2) minimizing physical and functional impairments; (3) containing the effects of chronic conditions; and, (4) valuing personal assets (Wright, 1960).

Music and relaxation actually preceded the guided imagery component of the intervention. Each week, participants listened to a 20 to 25-minute investigator-developed segment of a compact disc produced by the Cleveland Institute of Music, in which Dr. Deforia Lane provided the vocalization. The classical background music was designed to enhance verbal messages and relaxation techniques and to create a calm atmosphere for participants. While relaxing the body, participants were encouraged to take a mental journey to a special, peaceful place they chose (a consistent scene). In addition, they were asked to allow an image of one of their chronic conditions to form, by eliciting a symbolic representation of the illness. If participants were unable to develop an image of their chronic condition, they were encouraged to visualize the chronic condition as if it were an animal or pet.

Data Collection

Data were collected to test the intervention at four time points: prior to intervention or baseline, and at three post-intervention data points. These were: immediately post-intervention, at 6 weeks (lagged effects), and at 12 weeks (extended effects) post-intervention. Demographic information was recorded to describe the sample. Age was recorded as the participants' reported age in years and birth date. Gender and race were recorded based on participants' self-report. The number and types of chronic conditions were measured using Fillenbaum's (1988) questionnaire, which includes an assessment of the presence of chronic conditions (26 different disorders).

Instrumentation

Ideas about Long-Standing Health Problems (IALHP).
The instrument Ideas about Long-Standing Health Problems (IALHP) was used to measure acceptance of chronic conditions. Since a brief instrument for measuring acceptance of chronic health problems was not available, permission was granted to modify the "Ideas About Diabetes-Revised" (IAD-R) questionnaire, developed by Dion

(1990) to measure acceptance of diabetes. Replacing the word "diabetes" with the words "long-standing health problem" modified the IALHP questionnaire. The IALHP questionnaire contained 20 statements indicating acceptance of the implications of a long-standing health problem, and the respondents were asked to indicate whether they agreed with the statements using a 5-point Likert scale that ranged from "strongly agree" (4) to "strongly disagree" (0). The 20-item IALHP questionnaire has been found to be a reliable and valid measure of acceptance of chronic conditions (McDonald, Zauszniewski, & Bekhet, 2011). Construct validity of the IALHP was demonstrated by significant correlations in the expected direction between the IALHP scale and measures of self-assessed health ($r = .53$, $p < .001$), depression ($r = -.44$, $p < .001$), anxiety ($r = -.39$, $p < .001$), and functional status ($r = -.53$, $p < .001$) (McDonald et al., 2011). In addition, the IALHP was found to be reliable in a sample of 176 older adults (Cronbach's alpha = .83) (McDonald et al., 2011). In this study Cronbach's alpha for the IALHP questionnaire was .79.

Center for Epidemiological Studies-Depression Scale (CES-D) (Radloff, 1977). Depressive symptoms were measured by the Center for Epidemiological Studies-Depression (CES-D) Scale. The 20-item CES-D Scale (Radloff, 1977) asked participants to rate the frequency with which they experienced each listed symptom during the week prior to the interview on a 4-point Likert-type scale ranging from "rarely or none of the time" (0) to "most or all of the time" (3). Scores ranged from 0 to 60; higher scores after reverse coding of four items indicated greater frequency of depressive symptoms. The cut-off of the CES-D scale for clinical depression was 16. The scale is a widely reported valid measure, and it has been standardized for a variety of ages and racial groups. Alpha coefficients of .86 for frail elderly (Davidson, Feldman, & Crawford, 1994) and .82 for healthy elders (Zauszniewski, 1997) have been reported. Cronbach's alpha for the CES-D Scale in this study was .86.

State Anxiety Inventory (STAI A-State) (Spielberger, 1983). Anxiety was measured by the State Anxiety Inventory (STAI A-State) (Spielberger, 1983). The STAI is a 20-item scale measuring current anxiety; subjects rated the degree to which the items described current feelings on a 4-point Likert-type scale ranging from "very much so" to "not at all." Scores ranged from 20 to 80; higher scores after reverse coding indicated more anxiety. The scale has been widely used with diverse populations, including older adults. Psychometric properties including construct, predictive and concurrent validity, stability, and internal consistency reliability, have been widely reported. The STAI is one of the most commonly used scales for measuring anxiety (Dreger, 1978). Estimates of internal consistency reliability for the STAI in elders have ranged from .79 to .94 and evidence of its discriminant validity has been reported (Dennis, Boddington, & Fennell, 2007). In this study Cronbach's alpha for the STAI was .90.

Health Assessment Questionnaire Disability Index (HAQ-QI) (Fries, 1980/1996). The Health Assessment Questionnaire Disability Index (HAQ-DI) (Fries,

1980/1996) measured functional status. The HAQ-DI included 20 questions related to functioning during the past week. These questions covered eight areas: dressing and grooming, arising, eating, walking, hygiene, reaching, gripping, and outdoor activities. Each component included 2 to 3 questions; responses were scored on a 4-point scale of functional ability ranging from "without any difficulty" to "unable to do." The highest scores for the eight components were added for a total score ranging from 0 to 24. The HAQ-DI has been widely used, and considerable evidence of reliability and validity has been accumulated (Ramey, Raynauld, & Fries, 1992). Test-retest correlations have ranged from 0.87 to 0.99. Correlations between interview and questionnaire formats have ranged from 0.85 to 0.95. There is consensus that the HAQ-DI possesses face and content validity. Correlations between questionnaire or interview scores and task performance have ranged from 0.71 to 0.95 demonstrating criterion validity. The construct/convergent validity, predictive validity, and sensitivity to change have also been established in numerous observational studies and clinical trials. The HAQ-DI has also demonstrated a high level of convergent validity based on the pattern of correlations with other clinical and laboratory measures (Bruce & Fries, 2003). Cronbach's alpha for the HAQ-DI in this study was .86.

Self-Rated Health Questionnaire (Kaplan & Comacho, 1983). Self-assessed health was measured by Kaplan and Comacho's (1983) 3-item Self-Rated Health Questionnaire. The first item asked the subjects to rate their physical health as excellent, good, fair, or poor. The second item asked subjects to assess their health in comparison to their peers as worse, the same, or better; and the third item asked subjects to rate the extent to which their health interfered with daily activities as "not at all," "some interference," or "extremely bothersome." Self-perceived health status has been commonly used in studies of older adults, and the studies indicated that it is a reliable and valid tool, which can be substituted for objective measures of health status (Kaplan & Comacho, 1983). According to Kaplan and Camacho (1983), validity of the self-rated

health questionnaire was established by examining the relationship between perceived health status and nine-year mortality. Additionally, several researchers have found that self-assessed health predicted mortality (Idler & Kasl, 1991; Rakowski, Mor, & Hiris, 1991). In this study, Cronbach's alpha for the self-rated health questionnaire was .63, which may be viewed as acceptable given that the scale only contains three items.

Institutional Review Board Approval

Because this study involved human subjects, it was necessary to seek and obtain Institutional Review Board approval. Institutional Review Board approval was sought and obtained from Case Western Reserve University, Cleveland, OH, prior to data collection.

Data Collection Procedures

Elders were individually interviewed by trained data collectors in a private setting at a mutually agreed-upon time following recruitment and informed written consent. During the initial interview, information on age, gender, race, and number and types of chronic conditions was obtained. Structured face-to-face interviews were conducted using trained interviewers based on standard questionnaires including the IALHP, functional status, self-assessed health, CES-D, and STAI A-State measures.

Data Analysis

Descriptive statistics, including means, standard deviations, and range were used to demonstrate the subjects' demographic characteristics as well as the distribution of study variables. In addition, preliminary analysis included examination of two-tailed Pearson correlations among the major study variables and the examination of the reliability of the measures of the five major study variables (see Table 2).

Paired samples t-tests were used to examine mean differences of study variables between baseline assessment and study post-tests. Although the sample size was small

Table 2. Baseline Descriptive Statistics, Reliability Estimates, and Pearson Correlations between Outcome Variables and Acceptance of Chronic Conditions ($n = 62$)

Variables	Means	Standard Deviations	Correlations with Acceptance of Chronic Conditions	Cronbach's alpha
Acceptance	69.91	9.01	—	.82
Anxiety	9.35	9.17	-.353 **	.89
Depression	10.22	8.31	-.378 **	.86
Self-Assessed Health	6.59	2.34	.625 **	.63+
Functional Status	8.17	5.61	-.591 **	.86

2-Tailed Pearson Correlations
** $p < .01$
+ Note: this is a three item scale

in the final analysis, the sample exceeded $n = 30$. According to the central limit theorem, the means of sufficiently large samples will be nearly normally distributed (Kirk, 1982). The approximation becomes more precise as the sample size increases. However, the small sample size ($n = 37$) by the fourth measurement point was not sufficient for examining whether the effects of the intervention on the four outcomes were influenced by changes in acceptance over time.

Results

Acceptance over Time

Paired samples t-tests were used to determine whether acceptance of long-standing health problems significantly changed over time. The Acceptance Training significantly affected subjects' self-rated acceptance (see Figure 2). The immediate, lagged, and extended effects were significant ($t = -2.62$, $p < .02$; $t = -2.74$, $p < .01$, and $t = -3.32$, $p < .01$, respectively). Subjects rated their acceptance significantly higher at Time 2 ($M = 74.74$) than at Time 1 ($M = 71.62$). Similarly, subjects rated their acceptance of chronic conditions significantly higher at Time 3 ($M = 74.54$) and at Time 4 ($M = 75.54$).

Figure 2: Changes in Acceptance
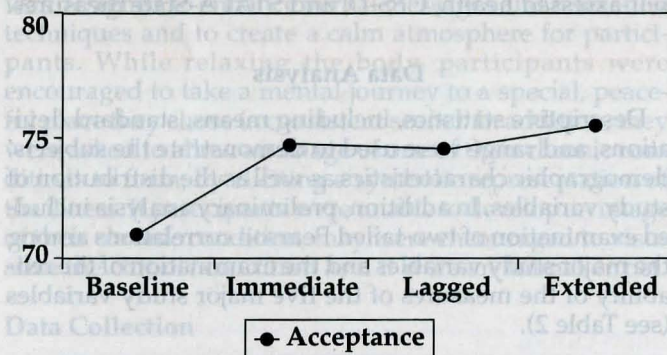
Psychological Health Outcomes (Anxiety and Depression) over Time

Paired samples t-tests showed that anxiety and depression did not improve after Acceptance Training was employed (Figure 3), although the extended effect of Acceptance Training approached significance ($t = -1.91$, $p = .064$). The mean anxiety scores at Time 1 and Time 4 were 5.95 and 7.54, respectively, suggesting that anxiety increased at Time 4. Although there was a downward trend in mean depressive symptoms over time, the change was not statistically different. The mean depressive symptom score at Time 1 was 8.29 and at Time 4, the mean score was 6.03 (see Figure 3).

Functional Status over Time

Paired samples t-tests were used to determine whether functional status significantly improved over time. Results showed lagged and extended effects of Acceptance Training ($t = 4.00$, $p < .001$; $t = 2.49$, $p < .02$) (Figure 4). The mean

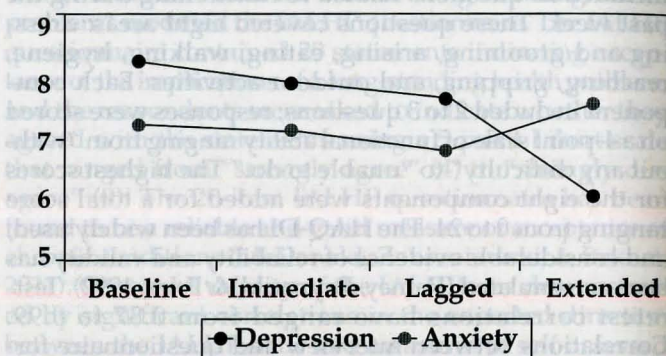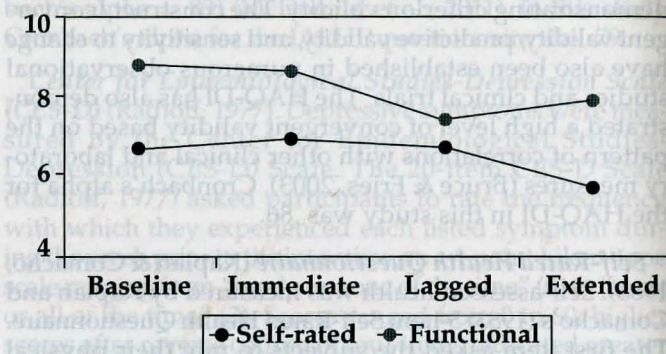**Figure 3: Changes in Psychological Health**

Figure 4: Changes in Physical Health

scores at Time 1 and Time 3 were 9.22 and 7.43, respectively. Since lower scores reflected higher levels of functional status, subjects rated their functional status significantly higher at Time 3 than at Time 1. Similarly, subjects rated their functional status significantly higher at Time 4 ($M = 7.86$) (see Figure 4).

Self-Assessed Health over Time

Paired samples t-tests were also used to determine whether self-assessed health significantly improved over time (Figure 3). The mean score at Time 1 was 6.65 and at Time 4 it was 5.71. Since a higher score reflected better self-assessed health, the lower score at Time 4 indicated that older adults perceived their health as worse than at baseline. This difference was statistically significant.

Discussion

Acceptance Training (ACT) is designed to help older adults accept unavoidable changes and alter their lifestyle to do things that are still achievable, despite their chronic conditions (Baltes & Baltes, 1990). In this study of the effects of ACT, acceptance of chronic conditions was significantly greater immediately after the intervention and at 6 and 12 weeks later. This finding is important because no earlier studies have tested the effects of Acceptance Training for older adults longitudinally.

Unexpectedly, psychological health (as measured by anxiety and depressive symptoms in the study), did not significantly change as a result of Acceptance Training. However, over time, there was a trend toward decreasing depressive symptoms. This, in fact, is inconsistent with previous studies that showed that acceptance was associated with less depression and better mental functioning in a sample of 69 HIV-positive persons (Guck, Goodman, Dobleman, Fasanya, & Tadros, 2010). One possible explanation is that since the scores were somewhat skewed prior to the intervention, there may not have been much room for improvement in depressive symptoms. The same downward trend was present in anxiety symptoms until Time 4, when anxiety symptoms increased. The authors wondered whether the lack of contact with the researchers may have led to heightened anxiety in the subjects at the end of the study.

Physical function scores improved at Time 3 and Time 4 in this sample of elders. This, indeed, is in accordance with previous studies that showed a positive correlation between acceptance and physical functioning (Guck et al., 2010). However, self-rated health was significantly lower at Time 4 than at baseline. Thus, these older adults who participated in Acceptance Training perceived their health as worse by the study's end, perhaps indicating the need for "booster" sessions of the intervention. It might be possible that the subjects were more self-aware of their failing health as a result of ACT, and perhaps that became an integral part of the acceptance process.

With an attrition rate of 40%, the sample size dropped from 62 to 37, which might help to explain the lack of significance on some of the study variables. While the sample was small, it exceeded $n = 30$, which is acceptable according to the central limit theorem. Further, subjects who dropped out did not differ on any study variable from those who remained in the study. Thus, no characteristics of the original sample would have changed the findings if those who dropped out had remained in the study.

Implications for Policy and Practice

The significant increase in acceptance of chronic conditions over time found here provides initial evidence for the "fidelity" of Acceptance Training. Elders were encouraged to give up their "disapproval" of chronic illness symptoms and were helped to accept good and bad days as general life conditions. The biopsychosocial intervention may have had a very significant emotional or effective component for helping elders manage their chronic illness.

It was hypothesized that Acceptance Training would influence anxiety and depressive symptoms (Dion, 1990; Haase et al, 1992; Kintner, 1997; Linkowski, 1971; Stuifbergen & Rogers, 1997; Wright, 1960). However, the older adults who participated in the study were neither highly depressed nor anxious at the outset of the study. Thus, it is possible that no intervention would have improved their scores on these measures. The fact that anxiety increased at the end of the study is most likely due to the fact that the older adults anticipated the lack of contact

with the nurse clinician and lacked the coping skills to deal with it.

Physical health outcomes (as measured by functional status and self-rated health) may have been less affected by the intervention due to the nature of chronic illnesses. Ongoing assessment is needed to determine whether support and/or increased assistance with activities of daily living is required to minimize pre-existing physical health problems and to diagnose and treat new problems.

Recommendations for Future Study

In planning interventions for older adults, priority should be given to coping strategies for improving their psychological health. Acceptance may be critical in helping older adults maintain well being, but more research is needed on this. It is possible that the effects of Acceptance Training (ACT) on psychological and physiological outcomes may be mediated or moderated by changes in acceptance (Baron & Kenny, 1986). Bennett (2000) emphasized the importance of testing mediating and moderating effects in order to obtain a more precise explanation for an outcome. However, the sample size in the study reported here did not provide sufficient power for detecting mediating or moderating effects. Therefore, it is recommended that these effects be tested with larger samples.

Future studies on acceptance of chronic conditions in older adults should continue to examine anxiety and depressive symptoms because these often remain undiagnosed, untreated, or under-treated in this population. Because 75% of elders have at least one chronic condition and nearly half are unable to perform some activities of daily living, interventions to decrease risks for anxiety, depression, and further declines in physical function are urgently needed.

Conclusions

Acceptance of illness or the conscious recognition of the patient that he or she is ill, is vital when dealing with the challenges and the restrictions imposed on the person by the disease (Zalewska, Miniszewska, Chodkiewicz, & Narbutt, 2007). Lack of acceptance may result in lower adherence to medical treatment and delayed clinical improvement (Zalewska et al., 2007). While the results of this study are promising in terms of the effects of Acceptance Training on the physical and the psychological well-being of older adults with chronic conditions, replication of the study with a larger more diverse sample is needed.

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