

# Practice Concepts

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## BE-ACTIV: A Staff-Assisted Behavioral Intervention for Depression in Nursing Homes

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**Purpose:** This article (a) describes a 10-week, behavioral, activities-based intervention for depression that can be implemented in nursing homes collaboratively with nursing home activities staff and (b) presents data related to its development, feasibility, and preliminary outcomes. **Design and Methods:** We developed BE-ACTIV, which stands for Behavioral Activities Intervention, in two pilot study phases: a treatment development phase and a feasibility–outcome phase with a small, randomized trial. We first piloted the intervention with five depressed residents in a single nursing home in collaboration with the social services and activities staff. The second phase randomized 20 residents from six nursing homes to receive either the intervention or treatment as usual. **Results:** The intervention was well received by residents, family, and staff members. Experi-

ence with the intervention and input from staff members resulted in modifications to streamline the intervention and improve implementation. Results suggest that BE-ACTIV reduced institutional barriers to participation in pleasant activities, increased resident control over activity participation, increased overall activity participation, and improved depressive symptoms. Despite low power, statistical and graphical comparisons suggest superiority of the intervention over treatment as usual. **Implications:** Because depression among nursing home residents is prevalent, heterogeneous, and often treatment resistant, there is a need for effective, low-cost interventions that are ecologically acceptable and efficient. BE-ACTIV is a promising intervention; it is brief, addresses institutional barriers, involves facility staff in treatment, and is acceptable to residents. As such, BE-ACTIV merits further evaluation to establish efficacy and effectiveness.

**Key Words:** *Depression, Nursing homes, Interventions*

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The prevalence of depression among nursing home residents is well established, with estimates ranging between 6% and 25% for major depression (e.g., Katz & Parmelee, 1997; Teresi, Abrams, Holmes, Ramirez, & Eimicke, 2001), as compared to community estimates of 2% to 8% (Regier et al., 1988). Minor or subsyndromal depressive syndromes may be as prevalent as 50% (Kim & Rovner, 1995; Parmelee, Katz, & Lawton, 1992; Samuels & Katz, 1995; Teresi et al., 2001). Despite this prevalence, and the fact that there are many available evidence-based treatments for depres-

sion in late life (e.g., Reynolds et al., 1998; Scogin, Welsh, Hanson, Stump, & Coates, 2005), relatively little is known about the effectiveness or acceptability of depression treatments in nursing homes (see Snowden, Sato, & Roy-Byrne, 2003, for a review of recent research). The most common approach to treatment is to use antidepressant medications. Recent data from the Centers for Medicare & Medicaid Services suggest that, nationwide, an average of 43.3% of nursing home residents take these medications (American Society of Consulting Pharmacists, 2006). However, there is evidence that, as they are presently being used, antidepressants are not fully effective in dealing with depressive symptoms of nursing home residents (Weintraub, Datto, Streim, & Katz, 2002) and that potential side effects pose particular dangers in this frail population (Katz, Parmelee, Beaston-Wimmer, & Smith, 1994; Nebes et al., 1997; Thapa, Gideon, Cost, Milam, & Ray, 1998). Furthermore, older adults have expressed preference for psychotherapy over medication in the treatment of depression (Gum et al., 2006). Additional treatment options are needed, either as supplemental or alternative approaches, for depressed nursing home residents. An important consideration in delivering treatments to nursing home residents is the role that environmental factors play in limiting resident control over daily routines and activities, and particularly the role of staff members in facilitating change (or lack thereof). We therefore sought to develop a nursing home-specific treatment for depression that was based on established intervention principles but that involved nursing home staff members in its implementation.

### *Conceptual Framework*

The conceptual basis of the intervention has been described in detail elsewhere (Meeks & Depp, 2003). Briefly, the intervention is based on an integrative, behavioral model of depression proposed by Lewinsohn, Hoberman, Teri, and Hautzinger (1985) and expanded to older adults by Teri and colleagues (Teri, 1991, 1992, 1996; Teri, Logsdon, & McCurry, 2005). According to this model, depression results from an interaction of individual vulnerabilities, environmental stressors, disruption of scripted behavioral patterns, and emotional responses. These factors combine to reduce access to positively reinforcing activities or experiences, particularly social reinforcement. As a consequence, the dysphoria associated with negative events (e.g., those surrounding nursing home placement) is not counteracted by positive affect associated with positive events, and persistent depressed mood develops. The intervention targets reduced positive affect by systematically increasing positive events and activities. In the nursing home, there are numerous barriers for residents in identifying and accessing positive events. The intervention involves working individually with residents to identify positive events and develop an individually tailored plan to increase the availability and frequency of those events, while simultaneously working with

staff members to implement the events and to remove institutional barriers.

### *Essential Components of BE-ACTIV*

BE-ACTIV, which stands for Behavioral Activities Intervention, is a hybrid approach to treating depression in long-term care that combines individual sessions conducted by a mental health practitioner, staff training, and collaboration between therapist and staff members. The intervention has four essential components: (a) individual weekly meetings between the depressed resident and a mental health consultant; (b) involvement of facility staff, particularly from the activities department, including a 3-hr staff training component and ongoing collaboration throughout the intervention period; (c) systematic assessment and increase of pleasant events; and (d) assessment and removal of barriers through behavioral problem solving and weekly communication between the mental health consultant and activities staff. As originally conceived, the intervention was delivered in six weekly sessions that were conducted by both the consultant (the principal investigator, Suzanne Meeks, served as the mental health consultant in the pilot work described herein) and a member of the nursing home activities or social services departments, with four weekly maintenance sessions conducted by nursing home staff members only. The final version evolved into the 10 sessions—interventions as detailed in Table 1 (see our discussion of pilot study outcomes that follows for an explanation of the changes made to the intervention). A mental health consultant met weekly with the resident for 30 to 40 min and also met weekly with members of the facility's activities department to discuss implementation of the planned pleasant events. Activities staff also received a 3-hr training that focused on the nature of depression in long-term care, identifying pleasant events and barriers, and behavioral problem solving for removing barriers (see Meeks & Burton, 2004, for a description of the training and data concerning its effectiveness). Consultants and staff members used a manual that described the content and expectations for each session. We developed this manual from the manual for a similar intervention used with family members of community-residing elders with both depression and dementia (Teri, Logsdon, Uomoto, & McCurry, 1997).

### *Uniqueness and Innovation*

A principal innovation of BE-ACTIV is the use of a collaborative relationship between a mental health therapist and activities staff members. Psychological interventions in nursing homes have typically used a traditional one-on-one psychotherapy model (e.g., Carpenter, Ruckdeschel, Ruckdeschel, & Van Haitisma, 2002; Lichtenberg, Kimbarow, Wall, Roth, & MacNeill, 1998). Other researchers have developed activities-based interventions for depression or for behavioral problems associated with dementia in nursing homes,

Table 1. Treatment Session Content

Session	Content
1	Introduction to Behavioral Therapy for Depression: Introductions, review research procedures. Explain relationship between pleasant events and mood, relevance for depression. Assess pleasant events. Plan three events that are easily accomplished. Identify relevant family members to be involved, if appropriate. ASF present with therapist and resident.
2	Scheduling Pleasant Events and Encouraging Family Involvement: Focus is planning further pleasant events. Last week's events are reviewed. Therapist reinforces resident for accomplishments and effort. If family member is present, discuss how he or she can be involved in further implementing pleasant events. Plan events for coming week.
3	Confronting Obstacles: The focus is on obstacles to achieving desired events. The A-B-C behavioral method is used to understand obstacles and, if necessary, develop a behavior plan to overcome them. Therapist reinforces resident (and family member if present) for effort. Last week's events are reviewed and new events planned for the next week.
4	Increasing Pleasant Events: The goal of this session is to continue to increase pleasant events that are feasible for staff and residents, and include family members when possible. Obstacles are confronted and problem-solving focuses on changing them. A goal of 6–8 pleasant events is optimal, but individual differences are taken into consideration.
5	Assessing Progress/Choice Point: ASF is included in this session. Goal is reevaluation and checking; resident and therapist review progress with staff (and family if present). If the resident is involved in five new events weekly, then future sessions will focus on increasing and/or maintaining activity level. If the resident is still struggling to find feasible events, the focus on the next few sessions is eliminating barriers.
6–9	Maintaining Gains, Problem Solving: Goals depend on decisions during Session 5. Problem solving continues as necessary. During these weeks, the activities staff develops an ongoing plan that will be integrated into the resident's care plan. The staff members and resident learn about the possibility of relapse and other factors that could make activity level decline in the future, and develop plans for coping with such setbacks. Staff members may participate, and even take the lead, in some sessions, supported by the therapist.
10	Summing Up: ASF is present for this session. Progress is reviewed. Plans for the future are discussed and summarized, including how staff will help resident continue activity levels and how staff, resident, and family will cope with changes in future. Resident, staff, and family are reinforced for effort and progress.

Note: ASF = activity staff facilitator; A-B-C = antecedent-behavior-consequence.

using research assistants or other outside consultants for implementation (e.g., Rosen et al., 1997; Rovner, Steele, Shmueli, & Folstein, 1996). With the latter approach, there is some evidence that gains attained may disappear when the consultant withdraws (Rosen et al., 1997). Staff training interventions, most often used for behavioral management, have met with limited success (see Snowden et al., 2003) for a variety of reasons (Burgio & Stevens, 1998; Schnelle, Cruise, Rahman, & Ouslander, 1998), but they have typically used nursing assistants. We chose activities staff because of the specific relevance of the intervention to their usual work tasks and because of their clear enthusiasm for the model in preliminary discussions with nursing homes. We designed regular engagement and collaboration between the staff members and the therapist, along with assimilation of therapeutic goals into institutional care plans, to enhance staff investment and follow-through.

## Methods

### General Description of the Pilot Studies

We conducted pilot studies in two phases. Both pilot studies used the same measures and general procedures.

The purpose of the first pilot study was to develop the treatment manual and determine the feasibility of having staff as the primary therapists. Five residents from a single nursing home participated and were randomly assigned to either a 2- or 3-week baseline for a multiple baseline design. Once the manual was developed, the second pilot study used a hybrid design, with 20 participants randomly assigned to either treatment as usual ( $n = 7$ ) or intervention ( $n = 13$ ). Our randomization design called for randomizing twice as many residents to the treatment as to the control, with the treatment group randomly divided between a 2-week and a 4-week baseline. Discussion of baseline group comparisons is beyond the scope of this article. The purpose of this study was to extend evaluation of feasibility to additional staff and facilities. We describe measures and recruitment procedures for both studies jointly here. The mental health consultant in the pilot studies was Suzanne Meeks, a licensed clinical psychologist with 15 years of experience providing mental health care to nursing home residents.

### Measures and Data Collection Procedures

The pilot studies called for a period of baseline assessment lasting 2 to 4 weeks, followed by a 6-week

Table 2. Means (SD) of Full Sample and Experimental Group Characteristics

Variable	Full Sample (N = 25)		Manual Development Pilot (N = 5)		Treatment (n = 13)		Control (Treatment as Usual; n = 7)	
	M	SD	M	SD	M	SD	M	SD
Age	75.4	10.1	66.0	6.4	76.9	11.5	79.4	4.3
Education (years)	10.6	2.5	10.8	1.6	9.3	1.8	13.0	2.6
Days since admission	1,068.0 (Mdn = 390)	2866.7	665.6 (Mdn = 390)	735.5	248.4 (Mdn = 664)	3,923.0	248.4 (Mdn = 160)	207.2
MDS ADL self-performance*	18.4	7.3	15.4	6.5	17.4	8.5	22.6	3.6
MDS number of diseases*	5.7	2.9	6.4	2.0	6.7	3.2	3.4	1.1
MDS number of medications	13.4	5.3	17.6	4.2	13.0	5.6	11.3	4.3
MMSE at baseline	21.0	4.9	24.4	3.4	18.3	5.5	22.9	5.5
GDS at baseline	14.9	6.1	16.8	4.0	19.3	4.6	14.1	3.8
GAS at baseline	60.0	9.3	56.6	8.0	55.5	7.2	59.3	3.6
Hamilton baseline	17.2	7.1	15.2	11.3	18.0	7.9	15.9	5.8
Staff-recorded activities (at baseline)	4.7	4.4	9.4	12.1	4.9	5.5	4.1	1.7

Notes: MDS = Minimum Data Set; ADL = activity of daily living; MMSE = Mini-Mental State Examination; GDS = Geriatric Depression Scale; GAS = Global Assessment Scale; Hamilton = Hamilton Depression Rating Scale; SD = standard deviation.

\* $p < .05$ .

active treatment phase, a 4-week treatment maintenance phase, and a follow-up at 24 weeks. The principal investigator administered pretreatment diagnostic interviews with a modified form of the mood disorders section of the Schedule for Affective Disorders and Schizophrenia (SADS; Endicott & Spitzer, 1978); data derived from the SADS included *Diagnostic and Statistical Manual of Mental Disorders* (4th edition) diagnosis, the Global Assessment Scale (Endicott, Spitzer, Fleiss, & Cohen, 1976), and the Hamilton Depression Rating Scale (Endicott, 1981; Hamilton, 1960, 1967). We also administered the Geriatric Depression Scale (Brink et al., 1982) and the Mini-Mental State Examination (Folstein, Folstein, & McHugh, 1975) at pre- and posttreatment. A doctoral student blind to treatment condition and trained to be reliable on the SADS with the principal investigator and criterion training tapes conducted posttreatment interviews. Research assistants collected observational data on affect and activity participation, self-reported affect, and staff-recorded activity participation continuously for all participants. The observers used hand-held computers and the Observer software system (Noldus Information Technology, 2000). We developed the observation manual for the pilot studies, but it is a modification of one used in research at the Polisher Research Institute (Lawton, Van Haitsma, & Klapper, 1996). Observations were made on weekdays for 5 min, 6 times per week, at times of the highest activity participation in nursing homes. Self-reported affect was collected using a modification of the Philadelphia Geriatric Center Positive and Negative Affect Rating Scale (Lawton, Kleban, Dean, Rajagopal, & Parmelee, 1992). Research staff visited residents three times a week to collect affect ratings; these visits were within the same time window as three of the weekly behavioral observations. Research staff collected behavior problem data from nursing assistants at baseline, posttreatment, and follow-up using the Revised Memory and Behavior Problems Checklist (Allen et al., 2003) for day and

evening shifts. We extracted medical and demographic data from residents' medical charts.

### Recruitment, Attrition, and Participant Characteristics

We recruited participants from six nursing homes in the Louisville, Kentucky, metropolitan area. For the first two facilities, graduate students screened all willing or able residents using the Mini-Mental State Examination and Geriatric Depression Scale. We used these screening data to select eligible residents, whom we then approached for consent to participate in the study. Because this procedure was very time consuming, in subsequent facilities the principal investigator asked facility staff to provide a list of all potentially eligible residents. Staff identified any residents who had diagnoses of depression, had depression triggered on the Minimum Data Set, or were on antidepressants. They excluded any who were already in psychotherapy, were terminally ill or under the care of hospice, or who had unstable medical conditions. The principal investigator then approached and screened these residents, accepting into the study those with a Mini-Mental State Examination score of greater than 13 and a Geriatric Depression Scale score of 11 or greater. The main impact of the change in recruiting strategy was that fewer of the referred residents who consented were actually eligible for the study, because they either were not sufficiently depressed to warrant a diagnosis or were too cognitively impaired. Participants were retained in the study and randomized to groups if they met diagnostic criteria for major depressive disorder, minor depression, or intermittent depressive disorder based on the structured clinical interview.

We used data from two sources to assess the representativeness of our sample: data publicly available through the Medicare Web site (Centers for Medicare & Medicaid Services, 2005) and chart data collected on all screened residents of two participating facilities. We found that our nursing home sample was

similar to national averages on most characteristics, except that they had fewer inspection deficiencies and more licensed staff. We also found that participants were representative of the nursing facility population from which they were drawn on age, health, disability, months in facility, and facility activity participation. Participants did not differ significantly from those refusing to participate or excluded from the study.

Table 2 shows baseline data for all participants enrolled in the pilot studies. *T* test and chi-square comparisons among the groups suggested that, compared to the treatment group, the control group (a) had fewer diseases but more impairment and (b) was less likely to be private pay. All but 1 of the pilot sample (80%) and 14 (70%) of the randomized sample participants were taking antidepressants at the time of entry into the study.

## Results

### *Manual Development*

We developed the intervention manual at the first facility, where Suzanne Meeks had a long-term relationship with staff members. We adapted the manual from that used by Teri and colleagues (1997) in their controlled trial with families of elders with dementia. A total of 5 residents participated, and 4 completed the treatment, during the manual development phase. Informal feedback from residents and staff was very positive. The primary barrier encountered was limited staff time; consequently, we changed the manual to reflect realistic allocation of their time (see Meeks, Teri, Van Haitsma, & Looney, 2006). Whereas the intervention initially called for staff members to conduct the actual treatment sessions, the revised manual called for the staff and mental health consultant to work as a team, with the consultant covering sessions the staff members were unable to schedule. Our experience over the next phase of the study suggested that the success of this model was inconsistent, depending on the staff member or members involved. We found that in order to guarantee consistent delivery of the treatment over all sessions, it was necessary for the mental health consultant to take primary responsibility for scheduling treatment sessions. Staff members were much more consistent in following through on activities planned during the treatment sessions. We incorporated these findings into the final version of the treatment manual as reflected in Table 1. (The manual is available from Suzanne Meeks upon request.)

The manual consists of two parallel versions: one for the mental health practitioner serving as therapist, and one for activities staff members. The manual provides a session-by-session guide for therapists and staff members. The therapist manual specifies goals for each session, a session agenda, specific topics or skills to be covered, session highlights, and assignments/homework for the following session. Also included in the therapist manual is a list of topics or tasks for the staff-therapist review session that follows the resident's individual session. Table 1 summarizes specific topics and goals for each session. Note that there is a

mechanism for family involvement if there is an active family member who would like to participate, although in our pilot work we found that few families wished to be actively involved in the treatment. The staff manual provides an overview of the program, outlines staff responsibilities, and then provides a session-by-session guide so that staff members are aware of goals for each session. Staff members are expected to be present for Sessions 1, 5, and 10.

Two activities occur in each session: review of the prior week's events, and reinforcement of resident effort toward increasing activation (regardless of how small). Pleasant events are identified using the Pleasant Events Scale—Nursing Home (Meeks, Heurman, Ramsey, Welsh, & White, 2005), a version of the Pleasant Events Scale developed specifically for this intervention. The Pleasant Events Scale—Nursing Home is reviewed each session. Pleasant events are defined simply as things the client reports that he or she would enjoy doing (or doing more of) that are feasible within the constraints of the nursing home setting and the client's abilities. These may be as simple as getting compliments, having a cup of coffee in the morning, or having books on tape delivered; or they may be as challenging as going on an outing. We found that sometimes seemingly trivial alterations (e.g., getting dressed for a social hour, or having a bookstand to hold novels for a patient with Parkinson's disease) could make a significant difference in residents' mood and satisfaction. Concurrently an important part of therapist-staff meetings is reinforcement of staff efforts to carry through with these activities and alterations.

Although each session has specific objectives and tasks, there is flexibility built into the process to account for individual differences in the speed with which residents become able and motivated to engage in pleasant events. The fifth session is targeted as an assessment session. For most residents, a significant response is evident by this session, such that they are beginning to engage in pleasant events and to incorporate them into their daily routines. For these residents, the remaining five sessions focus on reinforcement and support, encouraging residents to take responsibility for continuing to increase their activity involvement and ensuring that staff and facility support is stabilized and continuing. For residents who have not met the expected goal of increasing pleasant events by five or more by the fifth session, the next few sessions focus on problem solving and removal of barriers.

### *Treatment Adherence and Obstacles*

During the pilot studies, we collected data on staff and client activity adherence, therapy and supervision content, and therapist adherence to session contents. Suzanne Meeks rated these data weekly after supervision sessions with the staff members. We found that the majority of session time was taken up with reviewing, planning, and addressing obstacles to pleasant events; relatively little behavioral problem solving was required or took place. Supervision time was spent primarily reviewing session agendas and discussing

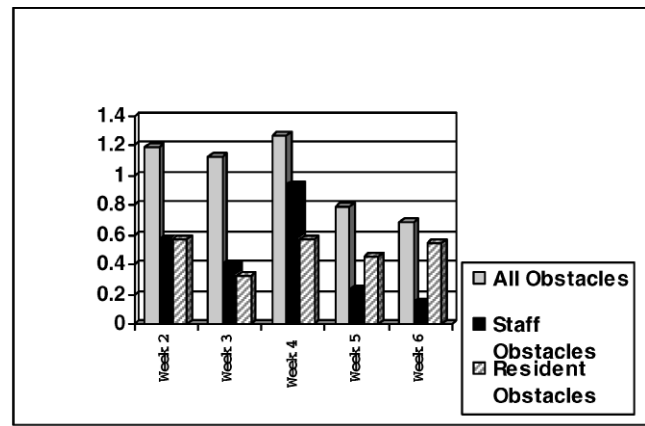
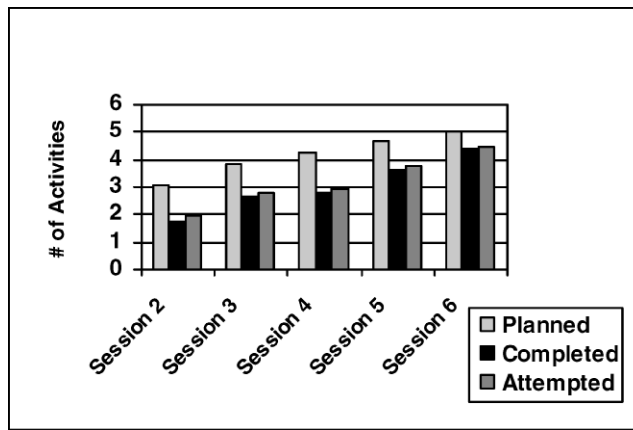


Figure 1. Activity adherence (left panel) and mean number of activity obstacles encountered by week (right panel).

obstacles and staff issues. We found that staff members were eager to assist but faced a variety of barriers as well, most commonly lack of time and resources. Effective therapist–staff collaboration required the therapist to develop an empathic relationship with staff members, recognizing their burdens and time pressures and helping them to problem solve around these. Staff members appreciated the structure that the manual provided both for carrying out their tasks in the intervention and also for helping them to conceptualize client progress for their routine case notes.

The left panel of Figure 1 shows average activity adherence for all participants as rated during sessions 2–6. Although there was incomplete correspondence between the number of activities completed or attempted and those initially planned, the number of successfully completed activities rose steadily as expected from the manual. The right panel of Figure 1 shows the corresponding decline in obstacles encountered by week. This decline was primarily accounted for by a decline in staff obstacles, particularly from Week 4 on, suggesting that a major impact of the treatment is to reduce facility-related obstacles to resident participation in preferred events. Examples of such obstacles included ineffective communication between activities and nursing staffs leading to failure to get residents ready for activities, lack of needed items such as tape recorders or craft supplies, and ineffective staff cues (e.g., nagging) for participation. Resident-related obstacles, especially resident refusal, increased somewhat, which may have been indicative of residents exercising greater choice in activity planning as time went on. We did not find significant differences among facilities in terms of staff adherence or the types of obstacles encountered, although the greater staff obstacles encountered in Week 4 of therapy were attributed to just two facilities in which communication with the activities staff was difficult because of scheduling issues. Across all facilities, we found that staff were often aware of obstacles to effectively increasing resident activity participation but needed the additional structure of the intervention, and the empathic support of the therapist, to work through those obstacles.

### Outcome Analyses

*Manual Development Pilot (N = 5).*—Of the 5 participants in the manual development pilot, 1 failed to complete posttreatment assessments because of increased medical morbidity. Posttreatment and follow-up scores and diagnosis for the remaining 4 participants showed reductions in both self-rated and clinician-rated depression scores (mean change of 5.3 and 11.27 points, respectively), increased global functioning (mean change of 25.8 points), and increased activity participation (an increase of about three activities a week) maintained through follow-up. Although the small number of participants provided little power for statistical comparisons, the change in activities between baseline and end of treatment was significant, paired  $t(3) = 6.20, p = .008$ ; and the comparison for the Global Assessment Scale approached significance, paired  $t(3) = -2.50, p = .087$ . By follow-up, none of the participants in this pilot phase had depression diagnoses as rated by the SADS.

To make optimal use of our data on individual participants, we used random effects regression models (RRM; Raudenbush & Bryk, 2002) of intraindividual change on variables that were measured repeatedly through self-report, staff report, and observation across the phases of the study to further analyze pilot outcomes. We compared individual participants' affect and activity means during each phase of the study (baseline, treatment, maintenance, and follow-up) using RRM. We could include all 5 participants in these analyses. Results supported a significant increase in staff-recorded activities for all participants. In all, 3 out of the 5 participants showed significant decreases in self-reported negative affect and an increase in observed activity as well. In addition, 2 showed significant increases in self-reported positive affect. In sum, the outcomes of this initial pilot phase were generally positive and encouraging.

*Randomized Pilot (N = 20).*—Of the 20 participants randomized in the second pilot study, 6 (30%) dropped out before treatment could be completed: 3 out of 13 (23%) from the treatment group and 3 out of 7 (43%)

Table 3. Randomized Pilot Posttreatment Scores and Diagnoses

Variable	Posttreatment				Follow-Up			
	Treatment ( <i>n</i> = 10)		Control ( <i>n</i> = 4)		Treatment ( <i>n</i> = 8)		Control ( <i>n</i> = 2)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Geriatric Depression Scale	14.3	3.4	12.5	7.3	12.1	5.5	13.0	4.2
Global Assessment Scale	63.9	7.1	67.0	11.2	70.1	7.1	62.5	10.6
Hamilton Depression Rating Scale	5.9	3.2	7.9	6.1	5.6	4.3	4.0	1.1
Staff-recorded Activities	6.9	3.7	3.7	2.7	5.4	4.9	3.5	0.7
Diagnosis								
MDD mild	1 (10.0%)		1 (25.0%)		1 (12.5%)		0 (0.0%)	
MDD moderate	0 (0.0%)		0 (0.0%)		0 (0.0%)		0 (0.0%)	
Minor depression	2 (20.0%)		1 (25.0%)		0 (0.0%)		1 (50.0%)	
Intermittent depression	0 (0.0%)		0 (0.0%)		1 (12.5%)		0 (0.0%)	
No depression	7 (70.0%)		2 (50.0%)		6 (75.0%)		1 (50.0%)	

Note: MDD = Major Depressive Disorder; *SD* = standard deviation.

from the control group. Attrition was primarily related to increased medical morbidity, although failure to complete follow-up was also related to assessment burden.

**Intraindividual Analyses of Change.**—We compared individual participants’ affect and activity means during each phase of the study using RRM. An advantage of using RRM is that it makes use of all available data, regardless of whether there were missing observations. Results showed considerable interindividual variability concerning (a) which measures changed significantly across the study phases and (b) intraindividual variability over time. When we included dropouts, 7 out of 13 participants (54%) in the treatment group showed change in the predicted direction on at least two dependent variables, whereas 1 of 7 participants (14%) in the control group showed comparable changes. Treatment effects were most evident after the full 10 weeks of the intervention, suggesting that ongoing staff involvement and engagement with the resident was important for successful continuation of treatment gains.

**Group × Time Analyses.**—Table 3 shows the posttreatment scores related to depression, diagnosis, functioning, and activities for the 14 participants who completed the treatment phase of the study (Table 2 shows pretreatment data). With the exception of diagnosis, we used RRM to analyze the Group × Time interaction, for which the levels of the time factor were posttreatment and follow-up. (Due to its discrete nature, we used a chi-square analysis for the diagnosis variable.) All but 1 (observed sadness) out of 11 outcome variables examined in this fashion showed the hypothesized Group × Time interaction when the fixed effects means were depicted graphically. Although space limitations prevent representation of all of these results, Figure 2 depicts results for several important affect and activity variables. We conducted the analyses with and without facility included as a covariate to determine the effect of facility differences on outcomes. Due to the large amount of intraindividual variability

(large standard errors) and small sample size, few comparisons achieved significance. The Group × Time effect for observed informal group activities (see Figure 2) approached significance,  $F(1, 147) = 3.19, p = .076$ , with facility included. As the graphs show, the control group declined in both informal and organized group activity across the observation periods, whereas the treatment group stayed stable on informal activities and strongly increased organized group activities during the treatment phase. Although these gains were decreased by the time of follow-up, the treatment group was still superior to controls. The facility effect was significant only for staff-recorded activity,  $F(5, 18) = 4.64, p = .007$ . However, inclusion of facility effects did not change the size of the Group × Time effects for any dependent variable, suggesting that although facility accounted for a portion of individual variability, this variation was not confounded with treatment effects. This finding supports the generalizability of the intervention across facilities.

In terms of diagnosis, we labeled residents *improved* if they had no diagnosis at posttest, or if they had a diagnosis of minor depression but had started the study with a diagnosis of major depression. We assumed dropouts to be unimproved. In all, 62% of the treatment group was improved, as compared to 29% of the control group,  $\chi^2(1, N = 20) = 1.98, \phi = -.31, p = .16$ .

**Summary of Randomized Pilot Results.**—The results of the randomized pilot efficacy study demonstrate both the feasibility of completing 10 sessions of treatment with depressed nursing home residents, and that the treatment led to increased activity level and more rapid improvement in depression and mood than did usual treatment. Improvements in activity and positive affect continued to be superior in the treatment group as compared to the control group at the 12-week follow-up.

### Staff Satisfaction

In all, seven staff members participated in delivering the program; we had demographic data on five of these.

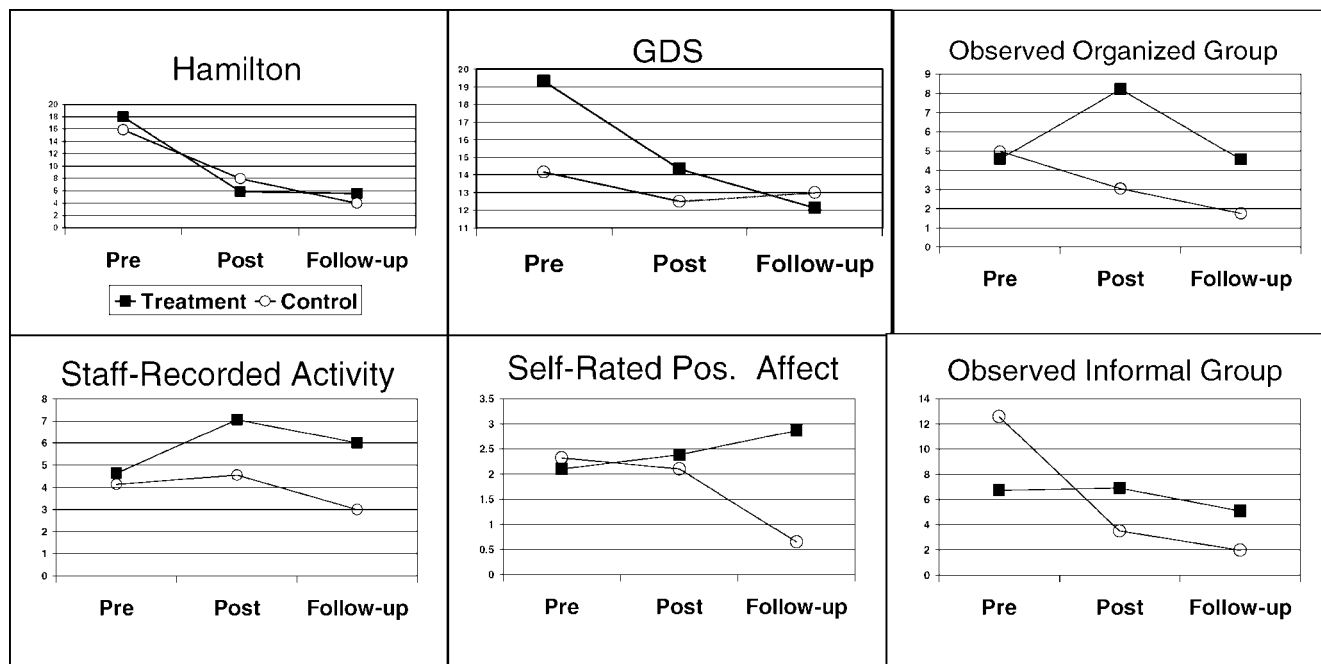


Figure 2. Graphs of fixed effects means of outcome variables from baseline to follow-up. Hamilton = Hamilton Depression Rating Scale; GDS = Geriatric Depression Scale.

They had a mean age of 34, and a mean of 12 years of long-term-care experience. Three were in social services and four were in activities departments. Their education ranged from a high school diploma to a master's degree. At the conclusion of treatment, participating staff members completed a brief satisfaction questionnaire developed for this study. The mean satisfaction score was 23.5 out of a maximum of 32 ( $SD = 4.47$ ). We obtained staff ratings for eight residents; because some staff members worked with more than one resident, it is possible that these ratings do not represent all staff participating in the study, but most of the staff rated at least one resident. Staff responses to individual items indicated that they spent more time with residents in the program, and 75% perceived an improvement in their relationship with those residents. They did not perceive that nonparticipating staff changed their treatment of the residents as a result of the program. The majority (87.5%) perceived supervision as helpful, and the same majority expressed overall satisfaction with the program. Staff members felt that participants improved in activity (37.5% perceived a little change, 50% perceived moderate or a lot of change) and mood (100% perceived at least a little improvement).

## Discussion

In this article, we have reviewed the process of developing and testing the feasibility and preliminary efficacy of a behavioral intervention for depression in nursing homes, BE-ACTIV. The BE-ACTIV intervention draws on empirical research on depression, both in older adults and in general, and is based on a clear conceptual model that has as its focus the importance

of increased behavioral activation through encouraging pleasant activities. A unique aspect of this intervention is the use of a collaborative relationship with nursing home activities staff. We developed both the preliminary and final treatment manual with extensive input from nursing home staff, who ultimately found their participation in the project to be rewarding and helpful in their ongoing relationships with residents and their ability to assess resident needs. The principal adjustment made to the manual was to reduce the responsibility of staff members for scheduling and keeping therapy appointments, which proved impossible given the demands of their jobs. However, staff members were enthusiastic and reliable participants in implementing the activity aspect of the intervention and appeared to appreciate the training and support they received from the mental health therapist.

Our data on staff and resident adherence, and on resident activity participation and activation over the period of observation, suggest that an important mechanism of action for the intervention was in reducing staff and facility barriers to activity participation and enjoyment. Although there were individual differences in the types of activity that changed over time, intervention recipients on average increased their overall activity levels and also increased participation in facility-sponsored activity. It is interesting to note that there was a tendency for participant-related barriers, primarily refusals, to increase over time, suggesting that residents also exercised more choice regarding activity participation as they became more activated. Our anecdotal experience suggests that initially, depressed residents feel unable to surmount obstacles, both perceived and real, to engaging in pleasant activities. They may be passive participants



in facility-sponsored events if staff members are insistent, but they do not feel in control of their leisure time. By removing barriers, establishing a collaborative relationship between resident and activities staff, and providing focused and appropriate encouragement through therapy sessions, the intervention appears to promote both activation and active decision making on the part of the resident.

Our outcome data show clinically significant reductions in depressive symptoms with corresponding improvements in psychiatric functioning for the treatment group, with a 75% recovery rate by follow-up compared to 50% in the control group. The gains in activation demonstrated by the treatment group were not mirrored by the control participants, who tended to decline in activity over the course of observation. Congruent with our conceptual model, findings for self-reported positive affect were related to activation: Whereas the control participants tended to have gradually decreasing positive affect, positive affect for the treatment group increased. However, although both activities and positive affect increased over the course of treatment, the treated residents also received more staff time and had increased attention from a mental health therapist. In our conceptual model, this attention is an important motivational factor for increasing activation, but it is possible that it is the attention, and not the activation, that resulted in improved depressive symptoms. It will be interesting to address this question with future research.

As the primary purpose of the pilot studies was to demonstrate feasibility after developing an acceptable treatment manual, the sample sizes were too small to consistently demonstrate statistical significance. However, these results clearly show that the intervention has promise for efficacy and support our goal of continued clinical refinement and empirical evaluation. An important metric of feasibility is acceptability of the intervention to nursing home staff. We present data to support our anecdotal observations that staff members were appreciative of the intervention and felt they gained both from didactic instruction and by the ongoing consultation and involvement with the resident. Staff members reported having a better idea of how to support and encourage residents, how to set their own quarterly goals, and how to chart resident progress. In every case we were able to successfully integrate intervention goals into the facilities' resident care plans. Further research will be required to evaluate the long-term benefits of staff involvement in the form of maintenance of treatment gains and recovery. Findings from our brief follow-up suggest that some gains are lost over time and that staff might benefit from periodic consultation or "booster sessions."

BE-ACTIV represents a hybrid approach to intervening for depression in long-term care. It relies neither solely on staff education and training, nor solely on external mental health consultation. Instead, the program requires collaboration between a trained mental health professional and the facility staff whose role it is to increase pleasant events for residents. The results of our feasibility studies suggest that this hybrid

approach has the potential to improve resident outcomes and staff satisfaction and competency. Because mental health consultation time should be billable under psychotherapy codes to Medicare Part B, insurance, or Medicaid, the intervention has the potential to be widely usable. It is our intention to pursue opportunities to evaluate the efficacy and effectiveness of BE-ACTIV; should it stand up to this additional scrutiny, it would make sense to incorporate widespread training in this approach for mental health professionals who work in long-term care. For now, BE-ACTIV provides a promising, feasible, and acceptable model for delivering treatment for depression that rests on a solid, empirically supported, conceptual foundation and incorporates what many already consider to be evidence-based approaches to psychotherapy with depressed and frail older adults (e.g., Scogin et al., 2005).

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