MULTICOMPONENT INTERVENTION FOR AGITATED BEHAVIOR IN A PERSON
WITH ALZHEIMER'S DISEASE

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We evaluated a multicomponent intervention for agitated behavior in a man with probable Alzheimer's disease. Hypotheses about variables controlling his agitated behavior guided intervention design. Based on staff interviews, direct observations, and brief experimental probes, intervention components were chosen to increase rate of reinforcement and decrease aversive aspects of his job. Intervention reduced agitated behavior without disrupting his work rate.

DESCRIPTORS: Alzheimer's disease, agitation, hypothesis-based intervention, behavioral treatment, elderly

Wandering, agitation, and aggression are common problems exhibited by people who have Alzheimer's disease (AD). These behaviors reduce quality of life and community access and can lead to institutionalization. Geriatric behavior problems are often addressed with psychotropic medications, although the limited literature shows only modest effectiveness and some risk of sedation, motor impairment, and tardive dyskinesia. Federal mandates now specify consideration of nonpharmacological treatment for behavior problems in nursing home residents (Burgio & Bourgeois, 1992). Behavior analysis, the predominant nonpharmacological approach to problem behaviors for those diagnosed with mental retardation, is just beginning to be applied to people with AD and other dementias (Fisher & Carstensen, 1990). To design a multicomponent intervention for agitated behavior in a man with AD, we adopted Carr and Carlson's (1993) approach to problem behaviors in individuals with mental retardation: Based on interviews with staff and direct observations, intervention components were chosen to address variables hypothesized to be functionally related to agitation.

METHOD: Mr. A was a 72-year-old retired executive diagnosed with dementia due to probable AD. His Folstein Mini-Mental State Exam score, 9 out of 30, indicated moderate severity in his gradually progressive dementia. He lived at home and attended an adapted work program (AWP) from 9:00 a.m. to 1:00 p.m. 3 days per week, along with 12 clients with dementia and two or three staff members. Increasing frequency and intensity of agitated behavior in the AWP had led progressively to physical intervention by staff, treatment with 15 mg daily of the antianxiety medication buspirone (subsequently increased to 20 mg for the study's duration), reduction to 9:00 a.m. to 11:30 a.m. enrollment, and ultimately expulsion from the AWP and two other day-care settings. Mr. A's return to AWP 5 months before our study was marked by constant supervision to ensure his safety and renewed plans for expulsion (which would likely precipitate nursing home placement). His attempts to leave the AWP area unsupervised continued to be a primary concern.

Measurement. The primary dependent variables were the behaviors identified by AWP staff that indicated that Mr. A was agitated and likely to leave the area: *out-of-seat* (unless cued by staff), and *agitated speech*, defined as statements regarding going home or his spouse (e.g., "Better see if my wife's here"). The second author and an AWP volunteer (and, during the final intervention phase, other AWP staff) recorded these behaviors daily from 9:30 to 11:00 a.m., using a 5-min partial-interval procedure. Reliability data collected on 31% of observations across all conditions yielded exact agreement coefficients (total and occurrence) of 98% and 82% for out-of-seat and 97% and 88% for agitated speech. To assess potential changes in adaptive behavior, daily production rates on Mr. A's usual AWP job (collating two-page documents) were sampled on 16 days across conditions. Reliability data were not collected on this measure.

Experimental design and procedures. Intervention effects were evaluated with an ABAB reversal design. During baseline conditions, staff periodically interacted with Mr. A to check or praise his collating or to replenish materials. They reassured him when he spoke about his spouse or leaving, asked him to return to his seat when he got up, and accompanied him when he left the room.

The intervention design was based on information from the Functional Analysis Interview Form (O'Neill, Horner, Albin, Storey, & Sprague, 1990) with the AWP supervisor as informant, interviews with other staff, and from detailed observations before and during the first baseline. The information suggested the utility of increasing the amount and variety of reinforcement available to Mr. A. contingent on working. This suggestion was based in part on our estimates that staff attention and interaction during baseline occurred during about 15% of the time he was working and (in order to maintain his safety) during nearly 100% of the time he was out-of-seat. In addition, because Mr. A's agitated behavior and task errors both increased toward the end of the morning, we hypothesized that fatigue, discomfort, or boredom might be relevant factors. Because he could not tell time, we were concerned that Mr. A had no way to estimate the time remaining until he left the program.

Following the first baseline, a 1-day intervention probe was conducted as a limited test of some of these hypotheses. The 90-min probe consisted of collating and folding tasks that alternated every 15 min. Correct document collation was reinforced socially and with a nickel on a fixed-ratio 5 schedule. No agitated behavior was seen during this probe. The effect of task alternation alone was examined during another 90-min probe. When collating and folding tasks were alternated without added reinforcement, agitated behaviors returned to baseline levels.

Based on the interview and the observational and probe data described above, a multicomponent intervention attempted to address all issues identified: (a) To increase the density of tangible and social reinforcement contingent on working, staff members provided a nickel, behavior-specific praise, and a pat on the shoulder for correct documents. Reinforcers were delivered on a series of variable-interval (VI) schedules with increasing density (VI 4 min from 9:30 to 10:10 a.m., VI 3 from 10:10 to 10:40 a.m., and VI 2 from 10:40 to 11:00 a.m.). (b) To provide rest, decrease any discomfort from prolonged sitting, and make the work setting more reinforcing, brief stretch or snack breaks were offered noncontingently every 30 min. (c) To increase task variety, folding alternated every 15 min with collating. (d) To provide cues regarding the time remaining to the end of the day, visual feedback marking progress toward breaks and lunch was added to a display after each 15-min task (e.g., "JOB 2 DONE"). Staff responded to agitated behavior with reassurance and redirection and accompanied Mr. A. if he left the room, just as during baseline.

RESULTS AND DISCUSSION: The figure shows that the multicomponent intervention based on hypotheses derived from interviews, observations, and experimental probes decreased agitated behavior while maintaining work rate in a man with probable AD. Mean percentages of intervals with agitated speech across successive baseline and intervention conditions were 42.3%, 11.1%, 25.2%, and 8.2%, respectively. The corresponding percentages for out-of-seat behavior were 23.0%, 3.5%, 13.6%, and 4.2%. Collating averaged 2.87 documents per minute across conditions.

Because agitated behavior often culminated in Mr. A's leaving the AWP area, considerable staff time was needed to accompany him during baseline conditions. Although not formally measured, leaving the area seemed to be reduced during the intervention aimed at the initial behaviors in the chain. At the end of the study, intervention effectiveness was endorsed by the AWP staff, and Mr. A was considered for reduction of his antianxiety medication and return to full participation in the AWP.

Limitations of the study include the need for (a) extension of this strategy for intervention design to others who have AD, (b) investigation of the effects of the individual intervention components, (c) identification of a variety of effective and age-appropriate reinforcers, and (d) implementation of ongoing assessment and maintenance procedures to promote continuation of intervention gains and counter the progressive dementia that attends AD. Behavior-analytic approaches to each of these challenges are well documented in the field of mental retardation, and hold promise for successful application with individuals who have AD and other dementias.

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