Effectiveness of Everyday Occupations for Changing Client Behaviors in a Community Living Arrangement

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Key Words: child development disorders • planning techniques (programs) • psychiatry

Objective. This study examined the effect of three occupations-based interventions for reducing the frequency of dysfunctional behaviors (disruptive vocalizations, distraction of others, withdrawal from appropriate social interactions) in two women with dual (i.e., developmental, psychiatric) conditions. Additionally, the duration of time spent appropriately engaged was examined.

Method. A single-subject, multiple baseline, across-subjects design, with two dually diagnosed residents in a Community Living Arrangement (CLA), was used to evaluate change in four behaviors under three alternating conditions. Condition 1 was CLA (morning and evening combined) compared with the school and sheltered workshop, Condition 2 was CLA morning, and Condition 3 was CLA evening. Intervention consisted of engagement in everyday occupations associated with the school–workshop and CLA settings as well as a positive reinforcement program.

Results. Using occupations-based interventions and a behavior modification program, 5 of 6 behaviors improved significantly in the school-and-workshop setting compared to the CLA, under Condition 1. Under Condition 2, the morning occupations-based intervention in conjunction with positive reinforcement for active participation significantly improved 4 of 6 behaviors for the two residents. Similarly, under Condition 3—the evening occupations-based intervention—4 of the 6 targeted behaviors improved significantly.

Conclusion. The use of everyday occupations as interventions, in conjunction with positive reinforcement for active participation, was effective for decreasing dysfunctional behaviors and increasing functional behaviors in two women with dual conditions who resided in a CLA.


Deinstitutionalization refers to the discharge of persons from institutions for the purpose of changing the manner in which treatment is provided. That is, from an institutional base to a community base for the delivery of treatment as well as the use of community support services. “Few controversies in public psychiatry are as important or as notorious as the debate about deinstitutionalization” (Okin, 1987, p. 4) or the manner in which and where it should occur (National Institutes of Health, 1989). In 1975, state-run facilities were faced with legislation (Public Law 94-63) to provide the least restrictive setting possible. In an attempt to comply with this mandate, community-based programs became more widely available. Community Living Arrangements (CLAs) and
Intermediate Care Facilities grew out of the deinstitutionalization movement (Prigmore & Atherton, 1979) and legislation (PL 94-63). However, the challenging and disruptive behaviors of some persons who transferred from institutionally based settings to community-based settings still needed to be monitored and reduced.

The origin of challenging and disruptive behaviors is not within the person with the disability, but rather the interaction of the person, the environment, and the task at hand (Edelson, 1995). Challenging behaviors, such as head banging and other self-injurious actions, may result from poor organization or lack of structure, inadequate stimulation, or little or no supervision (Iwasaki & Holm, 1989; National Down Syndrome Congress, 1990). For example, in some CLAs where there is inadequate supervision, extended periods of unstructured activity time, or poorly defined transitions between activities, a higher probability for challenging behaviors exists (National Down Syndrome Congress, 1990).

Psychotropic medications such as haloperidol and thiopental have been successful in controlling disruptive behaviors (Casby & Holm, 1994) but these drugs have been associated with side effects such as tardive dyskinesia, rigidity, gait impairment, dysphagia, and decreased dexterity. In effect, the Omnibus Budget Reconciliation Act (OBRA) of 1987 required medical staff members to reevaluate their methods of behavior control to free users from unnecessary chemical restraints (Casby & Holm, 1994, p. 884). If occupational therapists who provide consultation to CLAs, group homes and residential facilities could provide programmatic recommendations that would facilitate behavioral control and perhaps obviate the need for total reliance on chemical restraints, the intent of OBRA 1987 would be met and the client would benefit as well. The purpose of the current study was to examine the effect of using everyday occupations to decrease dysfunctional behaviors and increase functional behaviors in two CLA residents.

Method

This study employed a single-subject AB multiple baseline, across subjects, alternating conditions design (Barlow & Hersen, 1987), with two residents with dual (i.e., developmental, psychiatric) conditions (American Psychiatric Association, 1994) who resided in a Community Living Arrangement (CLA). The study was conducted to assess change in the incidence and duration of four behaviors under the following three alternating conditions.

1. Condition 1: CLA morning and CLA evening behaviors (Baseline; A) compared with behaviors in the school and sheltered workshop (Intervention, B);
2. Condition 2: CLA morning baseline (A) compared with the CLA morning occupations intervention (B); and
3. Condition 3: CLA evening baseline (A) compared with the CLA evening occupations intervention (B).

An alternating conditions design was chosen because the residents’ behaviors in the school and sheltered workshop were reported to be less dysfunctional than their behaviors in the CLA, but there were no data to support this belief. Therefore, once the dysfunctional target behaviors were identified, data on the target behaviors were collected in both environments (CLA and school-sheltered workshop) to verify that this assumption was correct (Condition 1). Conditions 2 and 3 were planned to address the target behaviors in the CLA during the morning hours (Condition 2) and during the afternoon and evening hours (Condition 3).

Participants

Participants were two residents from a Pennsylvania CLA who met the following inclusion criteria: (a) had at least one DSM-IV diagnosis (American Psychiatric Association, 1994), (b) had mental retardation as documented in the medical chart, (c) was at least 16 years of age, (d) exhibited inappropriate behaviors, (e) was taking psychotropic medications monitored by a psychiatrist, (f) was referred for participation in the study by the treating psychiatrist, and (g) had no hospitalizations within the 2 weeks before the study.

Resident 1 was a 17-year-old woman diagnosed with bipolar disorder, intermittent explosive disorder, and mild mental retardation. She attended a Special Education school program from 8:30 a.m. to 3:00 p.m., and was not employed. She had been a resident of the CLA for 8 months. Her medications included divalproex sodium, lithium carbonate, haloperidol, and benzotropine mesylate and she administered her own medications under the supervision of the residential staff. Her medications were not increased or decreased during the time of the study.

Resident 2 was a 19-year-old woman diagnosed with major depression with psychotic features, borderline personality, and moderate mental retardation. She attended a Special Education school program in the morning from 8:30 a.m. to 12 p.m. and a sheltered workshop in the afternoon from 1:00 p.m. to 3:30 p.m. She had been a resident of the CLA for 15 months. Her medications included haloperidol, benzotropine mesylate, and fluoxetine hydrochloride, and she administered her own medications under the supervision of the residential staff. Her medications were neither increased nor decreased during the study. Within the last year, she had been hospitalized for attempted suicide.

Target Behaviors

The two residents were referred for participation in the study as a means of exploring alternatives to increasing their psychotropic medications, which were used to control dysfunctional behaviors. The behaviors identified by the attending psychiatrist and the CLA staff were operationalized by the researchers for reliable data collection as follows:
Verbal disruptions (Residents 1 and 2). Verbal disruptions consisted of swearing, screaming, and inappropriate laughter. The frequency of verbal disruptions was recorded.

Distracting others (Residents 1). Distracting others consisted of verbal or physical distraction (e.g., talking in class, instigating verbal confrontation, poking or kicking others) that distracted another student, resident, staff member, or teacher. The frequency of distracting others was recorded.

Appropriate social interactions (Resident 2). Appropriate social interactions consisted of responding to or initiating social interaction with another person (i.e., saying hello, responding with a smile), including verbal and nonverbal responses to others. The frequency of appropriate social interactions was recorded.

Time engaged in appropriate activities (Residents 1 and 2). To improve the ease and reliability of the collection process, the researchers collected data on time that was defined as unengaged; that is, when the resident was (a) sleeping, (b) in elopement (leaving the CLA without permission), (c) distracting others, (d) in “time out,” or (e) withdrawn from activity. All time that was not unengaged was considered engaged for the purpose of the study, and then reversed for data analysis. The duration of time that the residents were unengaged was recorded.

Procedure and Data Collection

Legal guardians were contacted, and a meeting was arranged to discuss the study and gain consent by guardians and assent by the 2 participants. To chronicle the dysfunctional behaviors identified by the CLA staff, each participant was observed separately by a researcher during 15-min segments under the 3 conditions. Participants were observed while they participated in everyday occupations. All CLA residents were invited to participate in the everyday occupations, but data were collected only on Resident 1 and Resident 2. Data were collected by two researchers, one assigned to each participant.

A random numbers table was used to determine the time interval (i.e., 1 to 5 min) between each 15-min observation segment. For frequency of behavior (verbal disruptions, distracting others, appropriate social interactions), a tally mark was recorded for each target behavior occurring during each 15-min observation (Korn, Ranney, Schneck, & Schober, 1976). For duration of behavior (time engaged in appropriate activities), a timer was used to record the participant’s total time engaged during each 15-min observation.

The baseline observations (Phase A) were collected during the first week of the study on three randomly selected weekdays defined as typical by the CLA staff. The interventions (Phase B) were implemented the following week on three typical weekdays as defined by the CLA staff. The interventions were designed in conjunction with a registered occupational therapist and focused on active participation in everyday occupations.

For the typical CLA weekday condition, before-school observations (CLA morning) began at 7:00 a.m., when the residents were awakened by CLA staff. After waking, the residents were expected to shower, dress themselves, eat breakfast, take their medications, then board the 8:00 a.m. transportation to school, where CLA morning observations stopped. Based on the random observation sampling schedule, total CLA morning observations during baseline (A) included approximately 3.5 hr for Resident 1, and approximately 5 hr for Resident 2. During the intervention phase (B), Resident 1 was observed for a total of 3.25 hr, and Resident 2 for a total of 3 hr.

Observations during the school program for Resident 1 began at 8:30 a.m. and continued until 3:00 p.m. All classes for Resident 1 were held in a single special education classroom, with a 1-hr break for lunch. Resident 2 spent her mornings (8:30 a.m. to noon) in a separate special education classroom, had lunch at noon each day, then was transported to a sheltered workshop where she spent her afternoons (until 3:30 p.m.). Observations for Resident 2 began at 8:30 a.m., excluded transportation to the sheltered workshop, and continued until 3:30 p.m. The random observation sampling schedule yielded approximately 16.5 hr of observation time in the school environment for Resident 1, and 13.5 hr for Resident 2.

CLA afternoon and evening observations for both residents (CLA evening) began when they returned to the CLA between 3:45 p.m. and 4:15 p.m. Supper was served at approximately 5:00 p.m. Neither resident was assigned chores to complete, but they did have prearranged laundry days when they were encouraged to complete their laundry. The CLA staff would take both residents and their housemates on evening trips several times each week. Resident 1 typically prepared for bed at around 6:30 p.m. each day, and Resident 2 prepared for bed between 6:30 p.m. and 7:30 p.m. Observations stopped when the residents began preparations for bedtime. The random observation sampling schedule yielded a total baseline (A) observation time of 5 hr for both residents. Total observation time sampled during the evening intervention phase (B) was 6.5 hr for Resident 1 and 7 hr for Resident 2.

Condition 1

CLA Morning and CLA Evening (A). Condition 1 baseline data consisted of observations in the CLA under naturalistic conditions, collected during the mornings, afternoons, and evenings. Researchers participated as CLA staff and interacted with all CLA residents while gathering data. There were no behavior management programs employed in the CLA for either resident.

School and Sheltered Workshop (B). Condition 1 interventions for both residents consisted of the everyday occupations of the school and sheltered workshop in conjunction with the behavior modification programs in place for each resident. The purpose of the behavior modification programs
was to recognize and reward appropriate behavior. Three rules were posted on the wall and reviewed each day in each classroom: (a) ask permission before leaving the classroom; (b) no hitting, stealing, or breaking things; and (c) use appropriate language—no swearing. Each student, including the residents, received an "A" at the end of every hour that each rule was not broken. At the end of the day, Resident 1 could redeem her "A's" for prizes such as snacks or special privileges. For Resident 2, rewards included a snack in the morning and tutoring another student for one-half hour before lunch. Her sheltered workshop also offered small prize incentives for active participation and productivity. For both residents, the focus of the Condition 1 intervention was active engagement in school-and-sheltered-workshop occupations accompanied by a behavior modification program that directly related to decreasing dysfunctional behaviors and increasing functional behaviors.

**Condition 2**

**CLA Morning (A).** The Condition 2 baseline consisted of the Phase A naturalistic morning observations in the CLA described under Condition 1.

**CLA Morning Occupations Intervention (B).** The Condition 2 intervention occurred during the second week of the study and did not focus on the target behaviors, but rather on participation in routine morning occupations, or activities of daily living, such as making beds, cleaning up after breakfast with the research staff and other residents, getting dressed in clothing selected the evening before and taking medications. For Resident 2, it also included showering in the morning. Verbal praise was given to both residents when they participated in the morning occupations. Additionally, a positive reinforcement program was initiated for all residents, with points given for active participation in morning occupations, which could be redeemed at the end of the day for small prizes such as arcade tokens. Therefore, for Condition 2, the intervention consisted of actively participating in morning occupations. Additionally, unlike Condition 1, a positive reinforcement was implemented that rewarded participation in morning occupations, rather than decreasing or increasing the targeted dysfunctional behaviors. Data were collected on the targeted behaviors, however.

**Condition 3**

**CLA Evening (A).** The Condition 3 baseline consisted of the Phase A naturalistic afternoon and evening observations in the CLA described under Condition 1.

**CLA Evening Occupations Intervention (B).** The Condition 3 intervention occurred during the second week of the study and again did not focus on the target behaviors, but rather on participation in routine afternoon and evening occupations, or activities of daily living, such as straightening bedrooms, meal preparation and clean-up, and doing the laundry along with the research staff. Another occupation incorporated into the Condition 3 intervention was watching the local weather forecast and then selecting and hanging out the appropriate clothing to be worn to school the next day. Additionally, there was a scheduled period of leisure and craft occupations of the residents’ choosing, including stringing beaded necklaces and bracelets, and playing board games and cards. All CLA residents were invited to participate. As with Condition 2, the CLA-based behavior modification program consisted of verbal praise for participation in afternoon and evening occupations with points given for participation and completion of the activities. At the end of the evening, residents could cash in their points for small prizes and arcade tokens. As with Condition 2, during Condition 3 the intervention focused on active engagement in everyday afternoon and evening occupations rather than on the targeted dysfunctional behaviors. Data were collected on the target behaviors, however.

**Data Analysis**

Data were laid out graphically as the observations occurred, to determine whether the target behaviors differed significantly between baseline and intervention under each condition. The autocorrelation coefficient was computed for each of the conditions and behaviors observed. This was done to appraise serial dependency, “the extent to which scores at one point in a series are predictive of scores at another point in the same series” (Ottenbacher, 1986, p. 171). Bartlett's test was used to determine whether or not the autocorrelation coefficient was statistically significant. If the “autocorrelation coefficient was greater than 2/[the square root of ] n, where n = the number of baseline observations, the auto correlation is considered significant” (Ottenbacher, 1986, p. 173). The celeration line approach was used to look for trends in the targeted behaviors, and to determine whether statistically significant changes occurred in the targeted behaviors during the intervention phases. A modified version of Bloom's probability table was used to determine statistical significance at an alpha level of \( p < .05 \) (Ottenbacher, 1986).

**Results**

The Bartlett test showed no significant degree of autocorrelation for any of the target behaviors, except for Resident 2, under Condition 3, for seconds engaged appropriately. Based on the serial dependency, firm conclusions about the effectiveness of the intervention for that behavior are limited because the behavior may have continued to improve without the intervention.

**Resident 1**

**Condition 1.** Using the celeration line technique, the proportion of data points falling below the celeration line dur-
ing the school intervention phase (B), compared to the CLA baseline phase (A), achieved statistical significance ($p < .05$) for verbal disruptions (Phase A = 12/34; Phase B = 59/66) and distracting others (Phase A = 13/32; Phase B = 62/66). The increase in seconds engaged appropriately (i.e., proportion of data points falling above the celeration line) during intervention (B), compared to baseline (A), was not significant (Phase A = 16/32; Phase B = 0/66). The mean frequency of the verbal disruption and distracting others behaviors decreased during the intervention, and the mean number of seconds engaged increased, indicating a trend in the desired direction (see Table 1).

**Condition 2.** For Resident 1, verbal disruptions and distracting others decreased significantly ($p < .05$) during the CLA morning occupations intervention phase (B) when compared to baseline (A) (see Figure 1). Additionally, the number of seconds engaged appropriately by Resident 1 during the intervention phase (B) increased significantly over baseline (A) (see Figure 1). For each behavior the mean frequency or duration of the behaviors moved in the desired direction (see Table 1).

**Condition 3.** During the CLA evening occupations intervention phase (B), verbal disruptions did not decrease significantly when compared to baseline behavior (A). However, Resident 1 did significantly decrease distracting others during the intervention phase when compared to baseline (A), as well as significantly increase the number of seconds engaged appropriately (see Figure 2). Again, for Resident 1, the mean frequency and duration of the targeted behaviors moved in the desired direction during the intervention phase (see Table 1).

**Resident 2**

**Condition 1.** Based on the celeration line technique, the proportion of data points falling below the celeration line during the school-and-sheltered-workshop intervention phase (B), when compared to the CLA baseline phase (A), achieved statistical significance ($p < .05$) for verbal disruptions (Phase A = 22/40; Phase B = 47/54). Likewise, the proportion of data points above the celeration line for appropriate social interactions (Phase A = 18/39; Phase B = 52/54) also achieved statistical significance ($p < .05$), as did the increase in seconds engaged appropriately (Phase A = 20/39; Phase B = 52/54; $p < .05$). For Resident 2, the mean frequency of verbal disruptions decreased during the intervention, and the mean frequency of appropriate social interactions increased. The mean number of seconds engaged also increased, indicating a trend in the desired direction (see Table 1).

**Condition 2.** For Resident 2, during the CLA morning occupations intervention phase (B), the decrease in verbal disruptions was not significant when compared to baseline (A). Although the increase in appropriate social interactions did not achieve statistical significance, the increase in number of seconds engaged appropriately did (see Figure 3). For verbal disruptions, the mean frequency of the

### Table 1: Means and Standard Deviations of Targeted Behaviors of Each Participant, by Condition

<table>
<thead>
<tr>
<th>Behaviors</th>
<th>Baseline (A)</th>
<th>Intervention (B)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
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<tr>
<td>Resident 1: Condition 1: CLA and School</td>
<td></td>
<td></td>
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<tr>
<td>Verbal disruptions</td>
<td>2.67</td>
<td>2.83</td>
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<tr>
<td>Distracting others</td>
<td>1.67</td>
<td>1.90</td>
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<tr>
<td>Seconds engaged appropriately (900 sec)</td>
<td>755.46</td>
<td>195.63</td>
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<tr>
<td>Condition 2: CLA Morning</td>
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<td></td>
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<tr>
<td>Verbal disruption</td>
<td>5.50</td>
<td>2.88</td>
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<tr>
<td>Distracting others</td>
<td>3.58</td>
<td>2.39</td>
</tr>
<tr>
<td>Seconds engaged appropriately (900 sec)</td>
<td>628.33</td>
<td>164.71</td>
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<tr>
<td>Condition 3: CLA Evening</td>
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<td></td>
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<tr>
<td>Verbal disruption</td>
<td>4.25</td>
<td>3.14</td>
</tr>
<tr>
<td>Distracting others</td>
<td>2.15</td>
<td>2.03</td>
</tr>
<tr>
<td>Seconds engaged appropriately (900 sec)</td>
<td>735.50</td>
<td>160.09</td>
</tr>
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<td>Resident 2: Condition 1: CLA and School–Sheltered Workshop</td>
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<td></td>
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<tr>
<td>Verbal disruptions</td>
<td>1.16</td>
<td>1.67</td>
</tr>
<tr>
<td>Appropriate social interactions</td>
<td>4.77</td>
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<tr>
<td>Seconds engaged appropriately (900 sec)</td>
<td>664.41</td>
<td>247.07</td>
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<td>Condition 2: CLA Morning</td>
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<td>Verbal disruption</td>
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<tr>
<td>Appropriate social interactions</td>
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<tr>
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<td>Appropriate social interactions</td>
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</tr>
<tr>
<td>Seconds engaged appropriately (900 sec)</td>
<td>504.47</td>
<td>348.40</td>
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</table>

**Note.** Phase A was the baseline phase and B was the intervention phase. Conditions for both subjects were the same. For Condition 1, Phase A includes all a.m. and p.m. time in the Community Living Arrangement (CLA), and Phase B includes all time in the school-and-workshop setting. For Condition 2, morning in the CLA was the focus; and for Condition 3, afternoon and evening in the CLA was the focus.
Figure 1. Celeration line calculated in baseline phase (A) and extended into intervention phase (B) for each target behavior for Resident 1 during Condition 2, CLA morning (AM). Mean levels of behaviors were also calculated (M).
Figure 2. Celeration line calculated in baseline phase (A) and extended into intervention phase (B) for each target behavior for Resident 1 during Condition 3, CLA evening (PM). Mean levels of behaviors were also calculated (M). NS signifies that the intervention effect was not statistically significant.
Figure 3. Celeration line calculated in baseline phase (A) and extended into intervention phase (B) for each target behavior for Resident 2 during Condition 2, CLA morning (AM). Mean levels of behaviors were also calculated ($M$). NS signifies that the intervention effect was not statistically significant.
behavior decreased during the intervention phase, indicating movement in the desired direction, as did the mean duration of seconds engaged appropriately (see Table 1). The variability of behavior exhibited by Resident 2 yielded a lower mean frequency for appropriate social interactions during the intervention phase (B) than did the baseline phase (A), but the intervention was not statistically significant (see Figure 3).

**Condition 3.** During the CLA evening occupations intervention phase (B), the frequency of verbal disruptions did not decrease significantly compared to baseline (A), although the frequency of social interactions and the number of seconds engaged appropriately did increase significantly over baseline (A) (see Figure 4). For seconds engaged appropriately, however, the autocorrelation of the data during the baseline phase (A) indicates that Resident 2 already exhibited a trend toward increasing the number of seconds engaged, even though the acceleration line descends (see Figure 4). Therefore, the positive change in number of seconds engaged appropriately may have occurred without the intervention. For Resident 2, the mean frequency and duration of the targeted behaviors moved in the desired direction during the intervention phase (see Table 1).

**Discussion**

Overall, the findings of this study indicate that active engagement in everyday occupations was an effective intervention for decreasing dysfunctional behaviors and increasing functional behaviors in two women with dual conditions who resided in a CLA. The use of a single-subject, multiple baseline, alternating-conditions design (Barlow & Hersen, 1987) enabled the researchers to evaluate the effectiveness of both the school-based program and the occupational therapy occupations-based program (Baum & Law, 1997; Trombly, 1995). Although the CLA staff believed that the behaviors of the two residents were controlled better in the school-and-workshop environment and that this was due to the behavior modification program, no empirical data existed in support of their beliefs.

Condition 1 was implemented, therefore, to examine whether the behaviors of the two residents were controlled better in the school-and-workshop environment than they were in the CLA, which they were. For Resident 1, in the school environment, both verbal disruptions and distracting others occurred significantly less often than in the CLA. However, there was no significant difference in the two environments for number of seconds engaged, since she was actively engaged in both the school and the CLA. For Resident 2, all target behaviors were significantly more functional in the school-and-sheltered-workshop environment than in the CLA.

The engagement in the school-and-sheltered workshop occupations, in conjunction with the behavior modification program, for decreasing the dysfunctional behaviors and increasing the functional behaviors, was effective for the two residents in that environment. However, initiating a behavior modification program focused on the target dysfunctional behaviors of each CLA resident would have required a high degree of consistency among CLA staff for implementation. Therefore, the occupational therapist consultant suggested that the CLA intervention should, like the school-and-sheltered-workshop environment, focus on active participation in everyday occupations appropriate to the residents in the CLA. Because the residents were used to behavior modification programs in the school environment, the consultant introduced a positive reinforcement program focused on active participation in occupations instead of the target behaviors. This enabled the researchers to explore whether occupations-based programming could also reduce dysfunctional behaviors and increase functional behaviors in the two residents.

Active participation in everyday morning occupations (Condition 2) was highly effective for Resident 1, who had a high level of verbal disruptions and frequently distracted others during the baseline phase. As Resident 1 significantly increased the number of seconds appropriately engaged to a mean of 864 seconds out of each 900-second interval during the morning occupations intervention, her verbal disruptions and distracting others dysfunctional behaviors decreased significantly. For Resident 2, the effects of the morning occupations intervention were not as dramatic because she was already actively engaged appropriately during the latter baseline observations, however, engagement in morning occupations became less variable and also increased significantly. Resident 2 did not exhibit verbal disruptions with the frequency of Resident 1 during baseline, nor was the morning occupations intervention effective for increasing appropriate social interactions in Resident 2.

Baum and Law (1997) spoke of “building partnerships with clients and working collaboratively with persons with chronic health conditions and disabilities to remove environmental barriers that diminish or discourage their participation in everyday life in their community” (p. 286). The morning occupations intervention characterizes the partnership and collaboration referred to by Baum and Law. With the research staff working collaboratively with the residents and reinforcing their active engagement in everyday morning routines, the occupations-based intervention enabled the residents to better control dysfunctional behaviors and increase functional behaviors without increasing chemical restraints (Nelson, 1997).

Engagement in everyday afternoon and evening occupations (Condition 3) was effective for positively changing the behaviors of both residents. Verbal disruptions for both residents were reduced during the evening occupations intervention, but not significantly. However, the intervention was highly effective in significantly decreasing the tendency of Resident 1 to distract other residents and in significantly increasing appropriate social interactions by Resident 2. For both residents—but Resident 2 in particular—seconds in
Figure 4. Celeration line calculated in baseline phase (A) and extended into intervention phase (B) for each target behavior for Resident 2 during Condition 3, CLA evening (PM). Mean levels of behaviors were also calculated ($M$). NS signifies that the intervention effect was not statistically significant.
which they were engaged appropriately increased significantly as they actively participated with the research staff in everyday occupations. Engagement in meaningful occupations to effect positive change in the lives of our clients has been the hallmark of occupational therapy (DeCarlo & Mann, 1985; McDermott, 1988; Schwartzberg, Howe, & McDermott, 1982). The evening occupations intervention epitomized the use of occupations to effect positive changes in the two residents, again without the increased use of chemical restraints. Research staff invited all residents to engage in everyday occupations such as meal preparation and cleanup, watching the weather forecast for the next day and setting out appropriate clothing, making crafts, and playing cards and board games. This was in contrast to the baseline phase, during which the residents were left on their own after school while CLA staff made meals for them. Trombly (1995) stated that “occupational therapy was founded on the belief that engaging in occupation brought about mental and physical health” (p. 970). For the two study participants, both of whom had mental health conditions, the evening occupations intervention helped them reduce dysfunctional behaviors and increase functional behaviors, both indicators of improved mental health.

As is the case with all single-subject designs, the ability to generalize to other populations and across settings may be limited. This study included two women with dual psychiatric and developmental conditions who lived in a CLA and attended school. Although the research staff interacted with all residents in the CLA, only the classroom and sheltered workshop of the two target participants were observed. Even though the CLA intervention did not focus on the target behaviors, the extra observation could have unintentionally triggered a reactive effect that altered participants’ behaviors in the CLA. Whether the occupations-based intervention would be effective with other mental health populations in other congregate living situations is a topic for further study. The long-term effectiveness of the intervention, and whether it could obviate the use of chemical restraints in the two residents, is unknown because of the inability to obtain follow-up data from the CLA due to patient confidentiality. Future studies could incorporate a time series design to examine the long-term effectiveness of the occupations-based intervention with similar participants and to explore whether the occupations-based intervention could decrease the need for, or dosage of, psychotropic medications. Future studies in this area may also benefit from removing the data collectors from the role of interventionists, a requirement placed on the researchers by the CLA.

**Summary**

The purpose of this study was to discover whether the residents’ behaviors varied between their CLA and school environments and, if so, to design an occupational therapy intervention to decrease dysfunctional behaviors and increase functional behaviors in the CLA. The interventions in this study were occupations based and focused on the residents’ active involvement in everyday occupations. The findings support the effectiveness of an occupations-based occupational therapy program for effecting positive changes in the behaviors of two CLA residents. ▲

**Acknowledgment**

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**References**


National Down Syndrome Congress. (1990, January). Position statement on the management of challenging behaviors. (Available from The National Down Syndrome Center, 7000 Peachtree-Dunwoody Road, N.E., Lake Ridge 400 Office Park, Bldg. #5, Suite 100, Atlanta, Georgia 30328)


