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The Observer Effect and Its Impact on Staff Behavior in an Acquired Brain Injury Neurobehavioral Treatment Setting

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Staff in three neurobehavioral residential settings (5 in each residence for a total of 15 staff) were trained on specific positive interaction behaviors in a multiple baseline design. Staff in each of the residences were provided with recommended behaviors for interacting with residents through an observational procedure where they observed and completed checklists on video models of the targeted staff interaction behavior. In addition to staff interaction behaviors, subsequent levels of adaptive resident behaviors were also examined, such as active engagement and indices of happiness. Targeted interactions increased from an average of 7.2% of intervals during baseline to 80% during the intervention. Productive involvement engaged in by residents increased from 17.9% in baseline to 73.9% during the intervention, and the happiness indices of residents increased from 6.1% in baseline to 67.5% during the intervention.

KEYWORDS observer effect, interaction style, happiness indices

Functional work performance of direct care staff in acquired brain injury (ABI) rehabilitation settings is a crucial factor in facilitating the successful recovery of the individual receiving services (Guercio et al., 2002; Guercio et al., 2005). When an individual sustains an ABI, time is of the essence and rehabilitation should allow the patient to experience quality care from direct

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care staff frequently (Guercio et al., 2002). Quality of care is a key indicator of therapeutic gains and satisfaction by the family and funding source of the resident (Guercio & McMorrow, 2004). However, residents in human services facilities receive many services from specially trained providers from multiple disciplines. The majority of their time is spent with direct care staff who act on clinical orders and self-care routines. These skills are needed to facilitate a successful transition back to the home environment or an alternative group setting at discharge for the resident (Reid & Parsons, 2002).

Direct care staff support residents completing activities of daily living (ADLs) such as food preparation and daily hygiene routines. They are also instrumental in the physical and cognitive rehabilitation of the resident (Guercio et al., 2005). In this context, it is important that staff make the residential environment pleasant so that residents are more actively involved in functional activities and productive free time (Guercio & Dixon, 2010). Staff training is designed to shape direct care providers' delivery of this quality of care (Reid & Parsons, 1995).

The majority of the literature on social interaction and conversation in residential settings has focused more on increasing the *frequency* of interactions (Realon, Bligan, La Force, Helsel, & Goldman, 2002). The *quality* of the interaction (i.e., therapeutic and rapport-building content) is rarely investigated. A recent investigation performed in a residential setting examined quality staff interactions on 19 adults with profound mental retardation whom were nonambulatory and lacked functional communication skills (Realon et al., 2002). As staff interactions with the residents increased, so did the engagement and alertness among residents. This investigation also demonstrated that happiness indices observed among residents could be improved by having staff members perform certain communication behaviors. The objective measurement of happiness is a relatively recent phenomenon within the field of behavior analysis (Green & Reid, 1996).

Green and Reid (1996) were the first to operationalize and measure happiness in people with profound multiple disabilities. Since then, a number of studies have been conducted using their definitions of happiness and unhappiness (Davis, Young, Cherry, Dahman, & Rehfeldt, 2004; Green, Gardner, & Reid, 1997; Green & Reid, 1999; Green, Reid, Rollyson, & Passante, 2005). These studies underscored the utility of taking objective measures of happiness, which can be key indicators of social validity (Schwartz, 1991). Too often the experimental and therapeutic focus is strictly on the increase of interactions without adequate attention being paid to the qualitative outcomes on the affect and social experience of the resident: an area underscored by Schwartz and Baer (1991).

One behaviorally based model of assessing staff's interaction styles that focused on positive reinforcement and active engagement with the clients was developed by McMorrow (2003) for use with persons with brain injury.

Coined with the acronym "PEARL," this system has recently been reported to be effective in facilitating behavior change on the part of the staff. Performance feedback related to caregivers' interaction style were delivered along with a video that captured some recent interactions with brain-injured residents. Following low levels of quality interactions during baseline, all staff improved their performance to more acceptable levels of (Guercio & Dixon, 2010).

A recent behavior analytic approach to occupational safety demonstrated the effectiveness of similar training tactics (Alvero & Austin, 2004). Alvero and Austin had participants of the intervention identify target behaviors, conduct behavioral observations, review observational data, and receive behavioral feedback. They were particularly interested in the observation process and the effects that it can have on changing behaviors, which they called the "Observation Effect." After receiving task clarification on correct ergonomic behavior, participants were asked to observe a 5-minute videotape of a confederate performing office tasks and to complete a checklist of the previously trained ergonomic behaviors. Results of this study suggest that the observations conducted by participants watching the confederate's performance improved safety behaviors.

The current investigation sought to investigate the observer effect within a functional staff training treatment package in a postacute neurobehavioral ABI treatment setting. The study investigated whether the use of specific video observations could enhance the quality of interactions between direct care staff and adult residents with severe behavioral issues. A multiple baseline design across residences was used to investigate this question. A concomitant purpose of this study was to measure the outcome of these interactions on happiness indices and the interaction behaviors of the residents themselves.

METHOD

Setting

The study took place across three residential settings within a neurobehavioral treatment program. Each of the residences had from five to eight residential bedrooms, a kitchen, and restrooms throughout the house. There were six residents in each facility.

Participants

Each of the three residences was served by 10–15 staff members scheduled across daytime, evening, and overnight shifts. The project focused on the staff working the day shift in each of the residences. Approximately five

staff from each of the residences took part in the study. There were an equal number of male and female staff, with ages ranging from 26 to 46.

Dependent Measures

Staff behavior

The interaction style of the staff was measured using a set of operationally defined descriptors. The acronym PEARL was used to describe the interaction style that was being evaluated. Each staff member received extensive training on positive interaction styles and the use of PEARL during their orientation to their job. The targeted behaviors were part of a performance monitoring system utilized throughout the neurobehavioral program. Thus, the staff were accustomed to frequent observations of their behavior. Staff were rated on the following components:

P positive, upbeat, requests, promotes + behavior
E intervene before problems occur
A interacts with all residents
R praises good behavior
L looks for ways to teach

The following system allowed PEARL behaviors to be coded numerically based on the frequency of occurrence of the elements:

1. No resident engagement. Inadequately performing job duties (0 PEARL behaviors).
2. Engaged in paperwork w/ minimal interaction (1–2 PEARL elements per interval).
3. Performs optimally with resident engagement (>3 PEARL elements per interval).

Each instance of the PEARL elements noted above was counted as one occurrence. Statements separated by at least 3 seconds were counted as separate instances of the behavior. During each 10-minute interval observers wore a timer that indicated when a minute had passed. Observers scanned the residence during each 1-minute interval and recorded their observations. At the end of each 1-minute interval, they indicated the occurrence of PEARL behavior as described above. The same was done for productive involvement and happiness behavior. These data yielded a percentage of the interval in which each of the behaviors was observed. A formula was used to calculate the level of occurrence of how many residents staff were interacting with as part of the ALL definition in PEARL:

$$\frac{\text{\# of residents interacted with}}{\text{\# of residents within a 7-foot radius of the staff member}}$$

This allowed for a percentage to be calculated across each 10-minute observation interval. Incorporation of a numerical system to code PEARL behavior was found to be more reliable than subjective measures of each of the elements of PEARL based on their occurrence or nonoccurrence. The training of observers included a series of pilot observations. Reliability ratings exceeded 90% at the conclusion of the pilot training. Throughout the study itself, two independent data collectors conducted observations on 25% of the total observations. Interobserver reliability was calculated by dividing the number of agreements by the number of agreements plus disagreements, multiplied by 100. The average reliability score was 99% with a range of 96%–100%.

Resident behavior

The measures of resident productive activity was patterned after the Group Activity Observation Form described by Reid and Parsons (2002). The scale allowed for discrete descriptions of the resident's behavior during 10-minute observation periods:

Purposeful/Adaptive: activities w/ a purpose.
Purposeful/Age Inappropriate: activities associated with a younger age group.
Engaged: manipulating materials in appropriate ways/exploration.
Nonadaptive: lack of participation in purposeful activity.
Aggressive/Disruptive: property destruction/aggression.

Training for observers included pilot observations where they discussed their ratings at the end of each observation session until reliability ratings exceeded 90%. During the study the interobserver reliability for resident productive involvement behavior was 94% with a range of 86%–100%.

Happiness index

Measures of resident happiness were assessed according to behavioral definitions described by Green and Reid (1996). Happiness was defined as any vocalization or facial expression that would be considered to be an indicator of happiness (smiling, laughing, yelling while laughing, etc.). Unhappiness was defined as any vocalization or facial expression that would be considered to be an indicator of unhappiness (frowning, crying, grimacing, etc.) Neutral was defined as facial expressions that didn't fit either of the two

categories. Pilot observation periods were conducted for training, and happiness index ratings were reviewed to insure that the operational definitions were adhered to. The average interobserver reliability for happiness indices was 97%, with a range from 90%–100%.

Design

A multiple baseline design across residences was used to assess the efficacy of the intervention. The three phases of the ABC design were baseline, task clarification, and observation. The baseline phase was conducted for approximately 5 days in Residence 1, 6 days in Residence 2, and 7 days in Residence 3. The task clarification phase was conducted for 3 days, and the observation phase was conducted for 5 days.

Task clarification

During this phase of the study, day shift staff were provided the operational definitions of staff behavior and resident behavior described above. Most of this material was reviewed previously in their initial orientation periods. Staff were then allowed to ask questions.

Observation

In this phase of the study, day shift staff were shown 5-minute video clips depicting the behaviors provided previously in written format during the task clarification phase. There were desirable and undesirable examples given of each of the elements of PEARL. While watching the videos, the staff were asked to complete a checklist of interaction behaviors. They were also asked to indicate the resident behavior they observed according to the definitions on the Group Activity Observation Form. The staff were not given feedback on their ratings of these behaviors. Their ratings were compared to master sheets that had been coded with the correct responses prior to the showing of the video clips. All of the staff scored at least 90% accuracy on their forms.

RESULTS

There were 40 total observations of staff behavior (40 during baseline, 9 during task clarification, and 13 during the observation phase). There were 40 total observations of resident behavior (18 during baseline, 9 during task clarification, and 13 during the observation phase). There were 39 total happiness index observations (18 during baseline, 9 during task clarification, and 12 during the observation phase). Figure 1 displays the percent of the intervals where day shift staff members in the three residences scored a

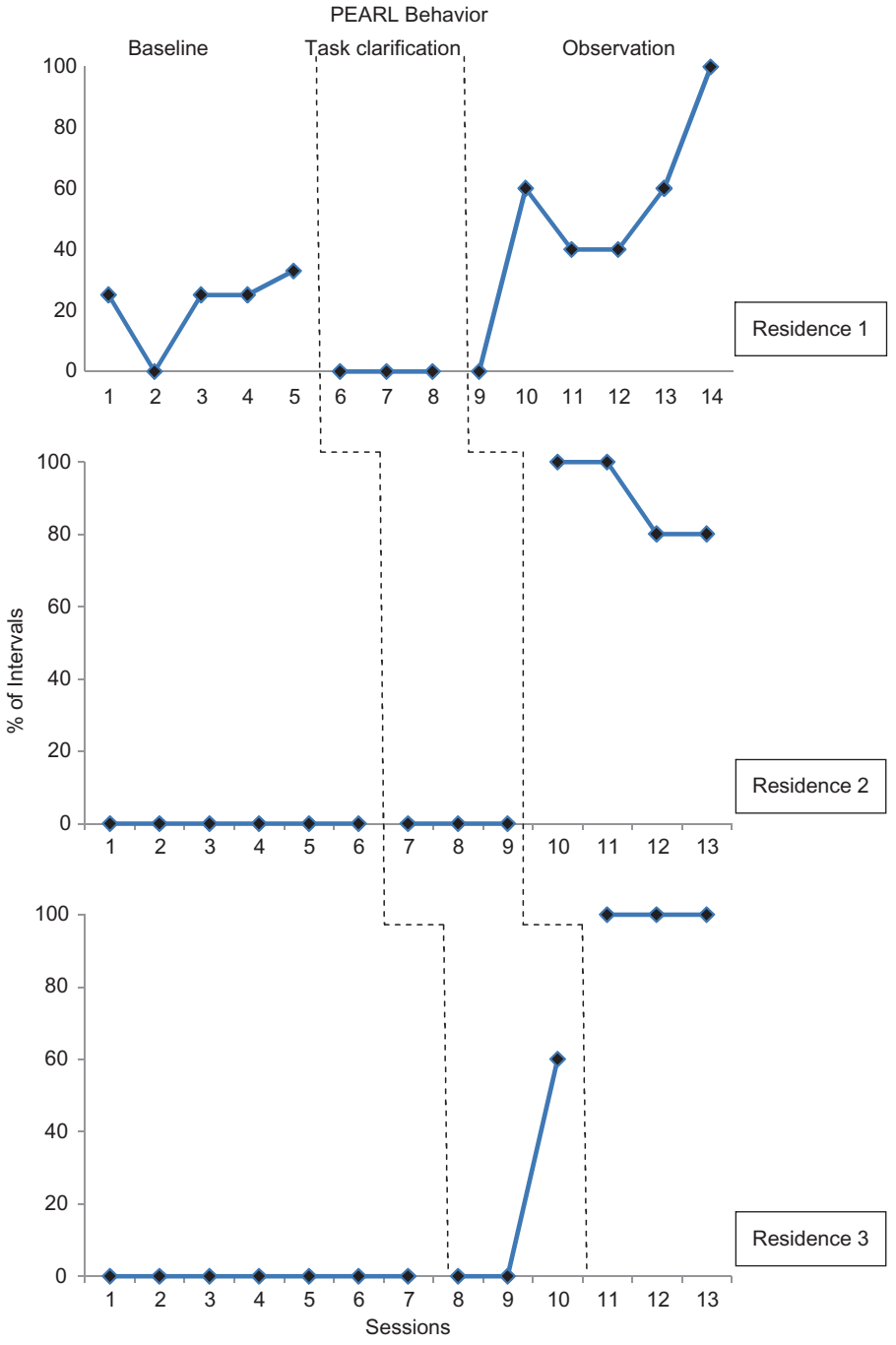

FIGURE 1 PEARL scores for indentified staff members in each of the residences monitored in the study. Data points represent items scored as a "3" on the data sheets used during the 10-minute observation blocks.

3 on the PEARL interaction scale. Residence 1 averaged of 21.6% appropriate PEARL behavior during baseline, 0% during the task clarification phase, and 50% during the observation phase. Staff members working in Residence 2 averaged 0% appropriate PEARL behavior during the baseline and task clarification phases of the study. A significant increase was seen when the observation phase was introduced and 90% appropriate PEARL behaviors were observed. Similar patterns were seen in Residence 3, where staff there averaged 0%, 26%, and 100% in the baseline, task clarification, and observation phases respectively.

Resident Behavior

Figure 2 displays the percent of intervals where residents demonstrated productive involvement behavior. Residence 1 averaged 35% of the intervals observed during baseline. This decreased to 25% during the task clarification phase, and increased to 53.3% when the observation intervention was conducted with the staff. Productive involvement behavior in Residence 2 averaged 18.6% of the intervals during baseline, decreased to 0% during task clarification, and then increased to 75% during the observation phase. Productive involvement behavior in Residence 3 averaged 0% during baseline, 46.6% during task clarification, and 93.3% in the observation phase.

Happiness Index

Figure 3 displays the ratings on the happiness index for residents in the three locations averaged across phases. The happiness indices for Residence 1 rose from 10% during baseline to 16.6% during task clarification, and to 55% during the observation phase. The happiness indices for Residence 2 showed a decrease from averaging 8.3% happiness indices in baseline to 0% during task clarification. This average rose to 57.5% during the observation phase. The happiness indices for Residence 3 rose from 0% in baseline, to 33.3% during task clarification, and to 90% during the observation phase.

DISCUSSION

Increases were observed for all of the dependent variables observed in the study corresponding with the implementation of the observation intervention above those seen in the task clarification phase. The gains observed in the observation phase of the experiment were maintained over three to six observation sessions. Among the reasons for this behavioral change could be use of an appropriate model for the behavior employed in the videotape. Another factor could be having staff complete checklists on appropriate interaction behaviors trained in the contingency clarification

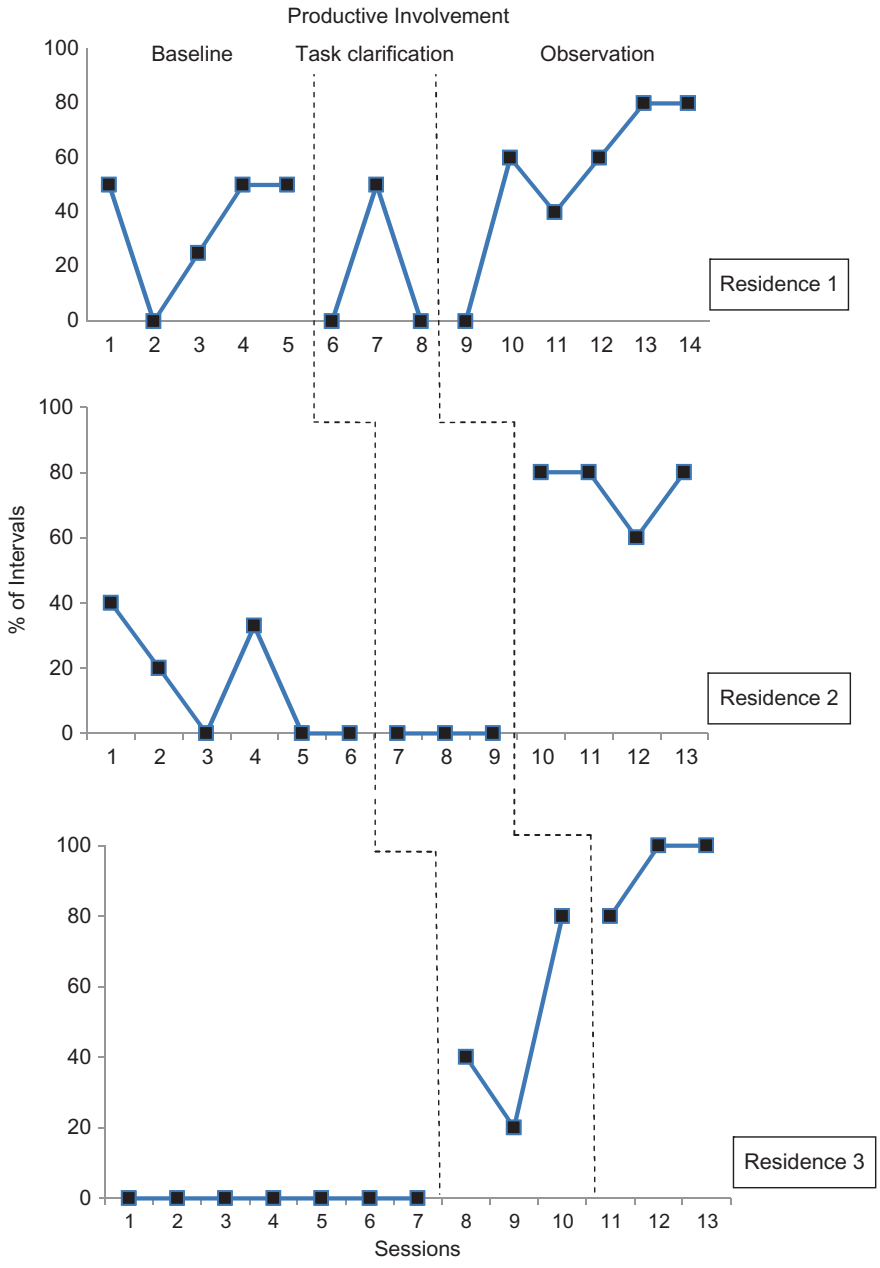

FIGURE 2 Productive involvement scores for the participants in each of the residences monitored in the study. Data points represent the percentage of each interval scored as such on the data sheets used during the 10-minute observation blocks.

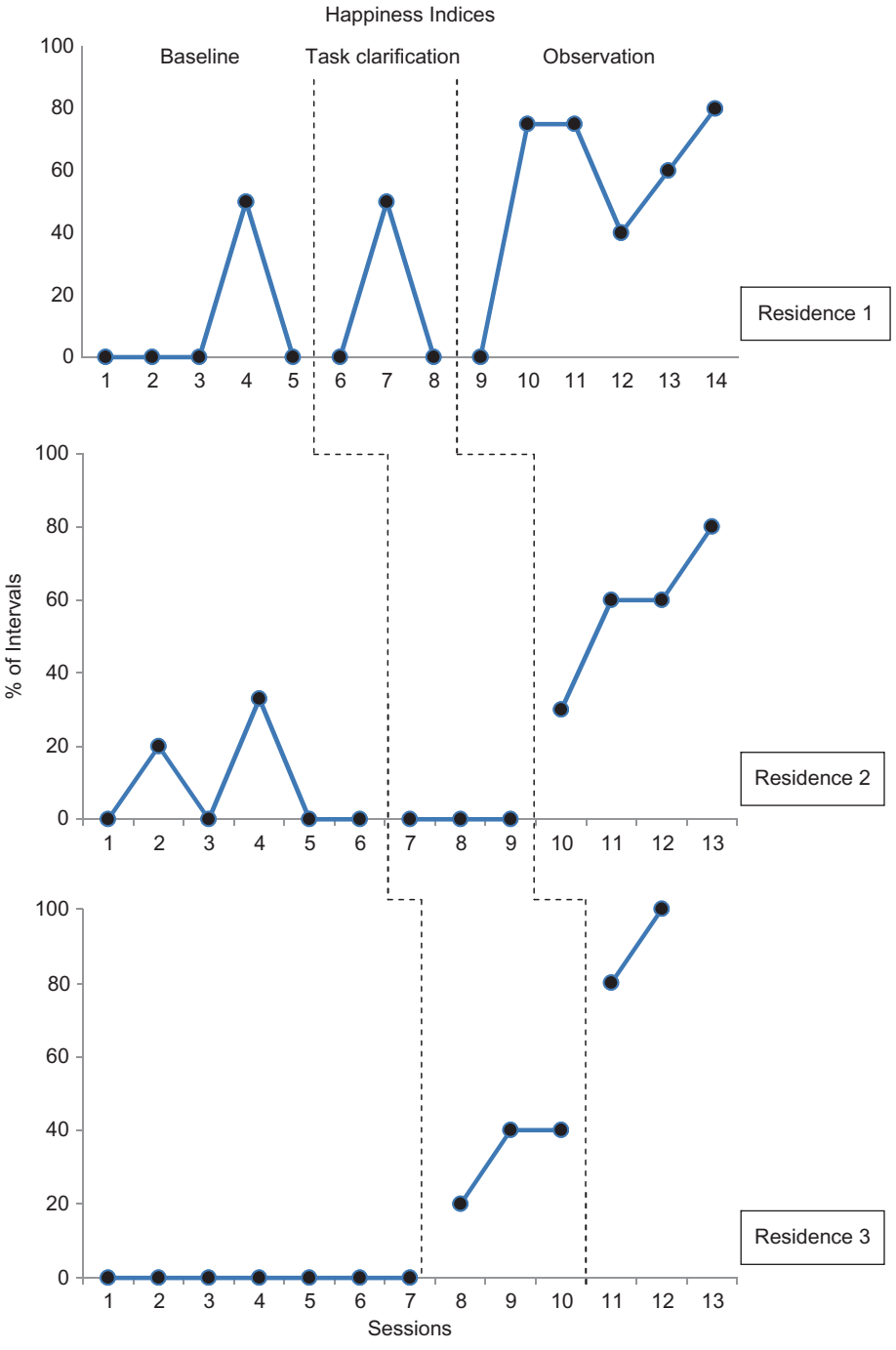

FIGURE 3 Happiness indices for the participants in each of the residences monitored in the study. Data points represent the percentage of each interval scored as such on the data sheets used during the 10-minute observation blocks.

phase. Although simply providing operational definitions during the task clarification phase did not produce a meaningful effect, the value of the PEARL material did appear to have some merit when trained using video observations. Distinguishing between the three levels of PEARL became more salient to the staff when they were required to rate the videotaped depictions of staff-resident interactions. Because the average agreement scores on the worksheets staff used to record videotaped observations were 90%, we suspect the operational definitions helped staff to evaluate PEARL behaviors in a much less subjective way, possibly, thereby, providing them with a better antecedent of their own behaviors. There appears to be a correlation between increases in positive PEARL scores by staff and increases in productive/adaptive behaviors and happiness indices in residents. This seems to support the hypothesis that increases in the quality of interactions that staff engaged in would have a positive effect on the behavior of the residents in the environment. Increasing the active engagement on the part of staff members appears to have reinforced more involvement in functional activities of the residents through praise and attention. The ratings of happiness observed could also serve as an indicator of quality of life for the residents.

The didactic nature of the treatment facility is on display here. As staff interact more with residents, residents then participate more and smile and laugh more. In return, the subsequent increases in happiness behaviors that accompany productive involvement reinforce staff members' interaction behaviors. Although the present study is limited due to its relatively small sample size and short time frame, the findings do suggest that by incorporating more observation-based training methodology, quality interactions between persons with disabilities and the staff that care for them can be enhanced and have a positive impact on the resident, the organizational climate, and potentially employee satisfaction.

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