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Using Self-Management, Video Feedback, and Graphic Feedback to Improve Social Behavior of Youth with Mild Mental Retardation

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Abstract: The purpose of the present study was to investigate effects of a training package on appropriate and inappropriate behaviors of residents with mental retardation with internalizing or externalizing behavior problems and the responses of staff to these behavior problems. The training procedure included resident training with video feedback and self-management procedures and staff training with video and graphic feedback. A multiple baseline design across residents was used. Results show increased appropriate social behavior for residents with internalizing behavior problems and decreased inappropriate social behavior for residents with externalizing behavior problems. The provision of video and graphic feedback also successfully improved performance of direct-care staff members. Recommendations are made for further investigation of variables related to behavior change of staff and residents.

When compared to people without mental retardation, social-skill deficits have been found to occur at a disproportionately high rate among people with mental retardation (e.g., Andrasik & Matson, 1985). Several variables have been found to account for these high rates. On the one hand, environmental factors such as avoiding demands and tasks may contribute to poor social performance. On the other hand, the behavioral and cognitive limitations associated with mental retardation may account for the observed social deficits. Recognition of the fact that social-skill deficits during childhood and adolescence can have implications for current and future

adjustment has prompted research into the remediation of such deficits (e.g., Amish, Gesten, Smith, Clark, & Stark, 1988).

The relevant research has also moved from the development of skill acquisition procedures to designing procedures to promote generalization and maintenance. Use of self-management procedures — which include goal setting, self-monitoring, self-evaluation, and self-reinforcement — has been found to promote generalization of behavioral changes. Furthermore, self-management treatment packages have been used with various populations and for various behaviors (for reviews, see Harchik, Sherman, & Sheldon, 1992). Embregts (2000, 2002) used self-management procedures with video feedback to modify appropriate and inappropriate social behavior of adolescents with mild mental retardation. The video feedback procedures involved videotaping an activity and having residents then observe and evaluate their performance. In the first study (Embregts, 2000), intervention consisted of: (a) videotaping inappropriate behavior, (b) having residents monitor and record their own behavior, (c) prompting residents to evaluate their behavior against a set criterion, and (d) having residents reinforce themselves for occurrence of appropriate behavior.

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Results showed a statistically significant decrease in percentage of inappropriate social behavior while the procedure was in effect. In the second study (Embregts, 2002), a training procedure involving self-management, video feedback, and graphic feedback was utilized to assess effects of intervention on both inappropriate social behaviors of youth with mild mental retardation and interactions of staff members with this youth. The procedure was found to successfully modify the performance of direct-care staff. Results showed an increase in occurrence of appropriate behavior on the part of the youth. However, inconsistent changes were found for inappropriate social behavior.

While the results of these studies are encouraging, it must be noted that all residents in the studies exhibited behaviors that can be characterized as externalizing: aggression, arguing, bullying, defiance of authority, temper tantrums, and intimidation of others. Children with mild mental retardation and social deficits that can be characterized as internalizing also exist. Internalizing behavior patterns include: refraining from interactions with others, shyness and unassertiveness, acting fearfully, not responding to social initiatives by others, and not standing up for oneself. Falk, Dunlap, and Kern (1996) assessed the effects of self-evaluation involving video feedback on inappropriate and appropriate peer interactions of children with normal intelligence and either externalizing or internalizing behavior problems and found the procedure to indeed increase rate of appropriate interactions and decrease rate of both internalizing and externalizing behaviors, respectively.

In residential programs, behavioral mediators are most frequently the direct-care staff, which has generated considerable research (e.g., Seys & Duker, 1988). Only a few studies in the staff training literature have measured maintenance (e.g., Belfiore & Browder, 1992; Demchak & Browder, 1990) or generalization of such behavior changes (e.g., Ducharme & Feldman, 1992; Suda & Miltenberger, 1993).

In the present study, it is, therefore, attempted to extend the results obtained by Embregts (2000, 2002) along two different lines. First, as residents in the previous studies

exhibited behaviors that can be characterized as externalizing, it was decided to include residents who also exhibit internalizing behaviors. Second, it was decided to undertake long-term, follow-up measures of effects of the intervention.

Method

Residents and Setting

The study was conducted at a residential facility for children and youth with mild mental retardation. Data were collected in the living group during lunch, dinner and tea throughout the week. Resident training occurred during school time; staff training occurred during group meetings.

Residents. Six residents, with an age ranging from 13.11 to 15.7 years, were selected by the psychologist as meeting the criteria for mild mental retardation and having an Oppositional Defiant Disorder or Attention Deficit-Hyperactivity Disorder (American Psychiatric Association, 1994). Descriptive information on residents is provided in Table 1. Three residents showed externalizing behavior problems and three residents showed internalizing behavior problems. They were all involved in special classes at the facility or in work placement receiving supervision from the practical training department of the facility.

Direct-care staff. Six certified members (2 females and 4 males) with a mean age of 38.4 years (range 29.8 to 47.3) and a mean 4.3 years (range 2.9 to 18.4) of experience with direct-care participated in the study. Four worked part time and two worked full time. They all had a high school diploma, and five also had a nursing degree.

Response Definitions

Residents. First, the experimenter asked significant others (i.e., the staff and psychologists) to independently describe the target externalizing or internalizing behavior(s) of the residents. Then, descriptions were compared and degree of agreement between the raters was used to identify specific target behavior(s) for each resident. Finally, the target behaviors were defined and recorded for each resident

TABLE 1

Resident Information

<i>Name</i>	<i>Male/female</i>	<i>Age</i>	<i>IQ (Wisc-r)</i>	<i>Classification DSM-IV</i>
Jacky	F	15.7	88	Oppositional Defiant Disorder
Kate	F	14.5	71	Oppositional Defiant Disorder
Anna	F	14.6	76	Oppositional Defiant Disorder
Jeremy	M	14.6	89	Oppositional Defiant Disorder
Tim	M	15.1	59	ADHD + Oppositional Defiant Disorder
Ronald	M	13.11	69	Oppositional Defiant Disorder

individually. Anna, Kate, and Jeremy had internalizing behavior problems. They were unresponsive to the social initiations of others, unassertive, and unable to “stand up” for themselves according to the staff; they also avoided talking with other children or staff. The target behaviors for Jacky, Tim, and Ronald were related to externalizing behavior problems. Tim had a tendency to interrupt another person while talking by shouting or hitting. The target behaviors for Jacky and Ronald were worsened offensive responses when criticized (e.g., “You are really stupid!”), shouting, verbal aggression, and making threatening or insulting statements and gestures (e.g., “Don’t say that again, or I’ll hit you!”). Jacky also made derogatory remarks about peers (e.g., “stupid idiot”) and provocative gestures, laughed at peers when they made a mistake, and ordered peers to do things (e.g., “Hey you, listen to me!”).

Direct-care staff. During two meetings, staff members, psychologist, and experimenter dis-

cussed responses of the direct-care staff to the above behaviors to each of the residents. These were: putting a stop to inappropriate behaviors (e.g., “Tim, I heard you. I will listen to you when I have finished my conversation with Kate.”); ignoring such inappropriate behaviors as shouting; and reinforcing such appropriate behaviors as waiting one’s turn by complimenting the resident or providing some other appropriate reaction. For the three residents with internalizing problems (i.e., Anna, Kate, Jeremy), the staff was also instructed to increase initiatives towards them and to reinforce appropriate behaviors.

Experimental Design

Data were collected in a multiple baseline design across residents with follow-up. In Figures 1 and 2, a schematic representation of the design is presented. Number of days of baseline (A) was determined a priori in order to control for reactive intervention. Follow-up

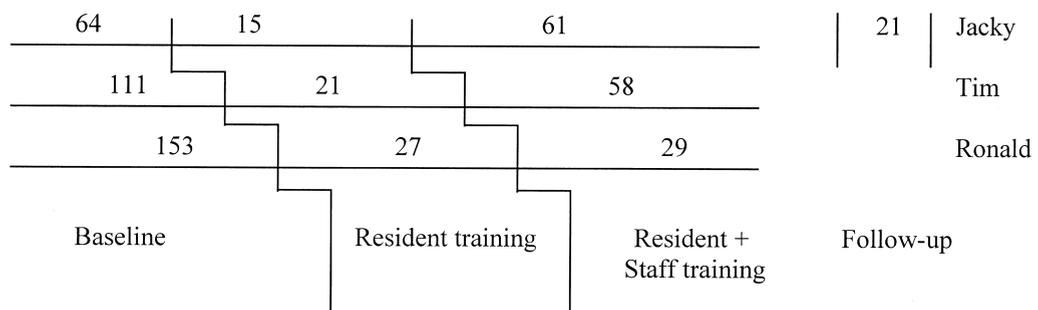


Figure 1. Number of recording sessions during baseline (A), resident training (B), and resident plus staff training (BC) for each of the residents with externalizing behavior problems.

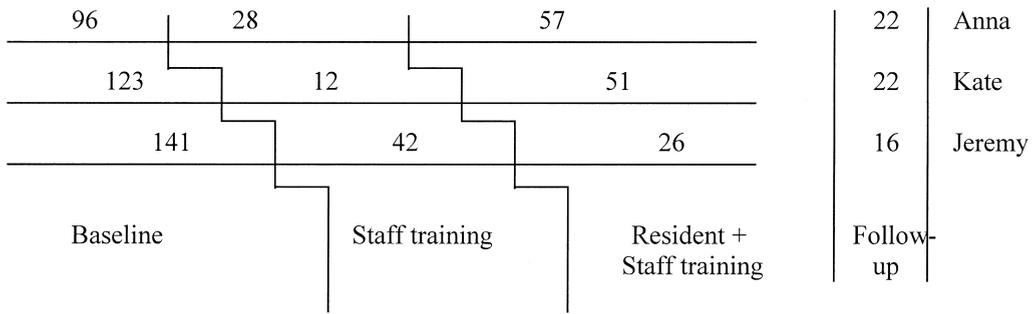


Figure 2. Number of recording sessions during baseline (A), staff training (C), and resident plus staff training (BC) for each of the residents with internalizing behavior problems.

data were collected four months after intervention. For residents with externalizing behavior problems, intervention started with resident training (B), followed by resident and staff training (BC). For residents with internalizing behavior problems, intervention started with staff training (C) followed by resident and staff training (BC). The multiple baseline design can be summarized as A-B-BC for residents with externalizing behavior problems and A-C-BC for residents with internalizing behavior problems. Baselines for Jacky, Anna, and Tim were 64, 96, and 111 days, respectively; baselines for Kate, Jeremy, and Ronald were 123, 141, and 153 days, respectively. Jacky, Tim, and Ronald received 15, 21, and 27 days of resident training (B), respectively. The direct-care staff for Anna, Kate, and Jeremy received 28, 12, and 42 days of staff training (C), respectively. The resident plus staff training (BC) had the following durations: 61 days for Jacky, 57 days for Anna, 58 days for Tim, 51 days for Kate, 26 days for Jeremy, and 29 days for Ronald. Due to logistical constraints, follow-up could only be conducted with Jacky, Anna, Kate, and Jeremy for 21, 22, 22, and 16 days, respectively.

Recording

There were 211 recording sessions across residents. Recordings were collected using a portable camcorder stationed on a tripod in the corner of the living room. We attempted to minimize reactivity in several ways. First, the videotaping began in the target setting two

months prior to the collection of the baseline data. Second, the videotaping occurred frequently (i.e., Monday through Friday) and across an extended period of time (i.e., 211 consecutive working days). Recording occurred on an individual basis. Responses were recorded using a partial interval system, with an interval of 15 seconds for observing followed by 10 seconds for recording. Two primary observers performed the recording using the HyperCard program for the Macintosh computer. Data collection did not begin until 80% interobserver agreement was attained for three consecutive sessions. Observer training consisted of (a) reading definitions of the appropriate and inappropriate social behaviors for the residents and staff responses, (b) being quizzed about definitions and discussion of any questions with the researcher, and (c) instruction on how to use the data recording system. During formal recording, the following measures were also taken in an attempt to control for observer drift and bias (Kazdin, 1977): (a) prior to each recording session, the observers re-read the response definitions; (b) if an observer achieved less than 80% agreement for two consecutive sessions in any category, the observer was retrained on the recording of that category; (c) the primary observers never received feedback on reliability of their recording; (d) primary observers were kept naive with regard to purpose of the study; and (e) primary observers were not informed about the experimental phase in effect.

Reliability

Interobserver agreement was assessed on an interval-by-interval basis. Reliability checks were conducted for 54 of the 211 recording sessions (26%) evenly distributed across residents and direct-care staff members and conditions (i.e., baseline, resident training, staff training, resident plus staff training, and follow-up). Interobserver agreement was calculated by dividing the number of agreements by the total number of agreements plus disagreements and then multiplying by 100. The Kappa statistic (Cohen, 1960) was next computed to control for chance agreement. To control for observer drift, the observers were never informed about the percentage agreement. Mean reliability and kappa for the assessment of resident interactions (i.e., no interaction, appropriate interaction, inappropriate interaction) were 85.70% (range of 76.74% to 93.65%) and 75.89% (range of 65.24% to 98.67%), respectively. Mean interobserver agreement and kappa for the assessment of staff responses were 88.94% (range of 73.33% to 100%) and 72.45% (range of 0% to 100%), respectively.

Procedural Fidelity

In order to estimate procedural reliability for the training procedure, an assistant recorded 10% and 15% of the resident and staff training sessions, respectively. With respect to resident training, the following was found. The trainer correctly stopped the videotape and asked the resident to record his or her evaluation in 100% of the training sessions. Residents recorded their target behavior in 95% of the sessions, compared their behavior to the criterion in 80% of the training sessions, and reinforced themselves correctly in 98% of the training sessions. The trainer correctly praised residents for recording the appropriateness of their interactions in 82% of the training sessions, asked for an example of the appropriate behavior in 94% of the sessions, and reviewed specific parts of the video in 87% of the training sessions. With respect to staff training the following was found. The trainer presented positive feedback for a correct response and corrective feedback for an

incorrect or omitted response in 88% and 84% of the sessions, respectively. Mean percentage graphic feedback and prompting was 100%.

Procedure

Baseline. Neither resident training using video feedback and self-management procedures nor staff training using video and graphic feedback occurred while this phase was in effect. Prior to baseline recording, the experimenter informed staff members and teachers about the purpose of the study (i.e., decreasing inappropriate social behaviors for Jacky, Tim, and Ronald; increasing appropriate social behaviors for Anna, Kate, and Jeremy; and increasing appropriate staff responses). Information was also provided on procedures to be used (i.e., video feedback and self-management for the residents; video and graphic feedback for the staff). Two days prior to intervention, the trainer and a staff member informed the residents individually and asked each resident to select a tangible reinforcer. Reinforcers were then selected on the basis of each resident's suggestion and low cost. Residents were also asked to identify a number of behaviors that prevented them from interacting positively with others, but were nevertheless exhibited by them. For those residents with internalizing behavior problems, the importance of engaging in interactions was discussed.

Resident training. Prior to initiation of this phase, the trainer held three brief meetings with each resident in a so-called pretraining phase, which was identical to the procedure followed by Embregts (2000, 2002). During these sessions, the trainer showed residents how to use the self-recording forms, asked residents to provide examples of appropriate social behaviors (e.g., reacting to an initiative from a peer at a normal sound volume) and examples of inappropriate social behaviors (e.g., no reaction or reacting to a peer violently). In addition to this, the resident was asked to classify videotaped examples of behavior from unknown people and from themselves as either appropriate or inappropriate. If the resident could correctly classify 80% of the examples, intervention was commenced. If the

resident failed to attain 80% correct classification, the trainer provided further assistance within a least-to-most format. Residents were able to discriminate correctly between appropriate and inappropriate behavior in 90% to 100% of the instances. After completion of the pretraining sessions, formal training was initiated.

Training sessions were conducted twice a week during school time. During each of the sessions, residents viewed a 10 minute segment of videotape made during lunch, dinner, or tea from the previous week. After 30 seconds of viewing, the videotape was stopped and the trainer asked the resident whether the observed behavior was appropriate or inappropriate. Following this, the resident was asked to record his or her response on a sheet. The trainer viewed the videotape simultaneously with the resident and also recorded the occurrence of appropriate or inappropriate behavior. Initially, following each interval of 30 seconds, the trainer compared her response to that of the resident. After the resident and the trainer reached agreement on 80% of the intervals, comparison was discontinued with the exception of once at the end of the session. When the resident and trainer agreed on an inappropriate target behavior, the trainer praised the resident for recording correctly and then asked the resident to provide an instance of appropriate interaction with others. When the resident and the trainer agreed on occurrence of appropriate behavior, the trainer praised the resident for displaying the appropriate behavior and recording it correctly. When the trainer and the resident disagreed, they viewed that part of the videotape again.

During training sessions, the residents could earn tokens (i.e., points) for the identification of appropriate and inappropriate behaviors. Before viewing the video, the trainer specified the number of appropriate behaviors needed to earn a token. For the first session, the criterion was based on median percentage appropriate behaviors occurring during baseline. At the end of the training session, the resident compared the number of appropriate behaviors identified to the criterion set for him or her. When the criterion was attained, the resident was allowed to give

himself a point. When criterion was attained in three consecutive sessions, it was increased by 10%. When a resident had earned 15 points, he or she could exchange these for a reward.

Staff training. Training of the direct-care staff consisted of video and graphic feedback. At the start of this condition, each staff member met three times individually with the experimenter to get used to the receipt of video feedback. During these sessions, descriptions of the appropriate and inappropriate behaviors for the residents were reviewed along with the responses of the staff to such behaviors. In addition to this, the importance of correctly demonstrating certain responses was emphasized. Following these individual sessions, direct-care staff meetings were scheduled once a week to provide video feedback. To ensure feedback consistency, the experimenter used the following script: (a) provide positive feedback for correct demonstration of a response contingent on a resident's social behavior, (b) provide corrective feedback for an incorrect response or omission of a correct response to the social behavior of a resident, (c) provide positive feedback for a correctly performed response, (d) presentation of the percentage inappropriate behavior of Jacky, Tim, and Ronald and the percentage appropriate behavior of Anna, Kate, and Jeremy, and the percentage correct responses for each individual staff member, and (e) encouraging the staff to increase the percentage correct responses and to finish with a positive comment about the videotapes.

Follow-up. This phase of the study was undertaken four months after completion of the intervention. During follow-up, resident training (with video feedback and self-management procedures) and staff training (with video and graphic feedback) had discontinued. For logistical reasons, follow-up data could only be collected on Jacky, Anna, Kate, and Jeremy.

Staff and resident ratings. In order to determine whether behaviors acquired as result of the training were viewed as valuable and relevant and also to determine the degree of training acceptance and satisfaction, direct-care staff was asked to rate the following components of the training along a five-point Likert

scale: (a) acceptance of the presence of the camera within the living group, (b) acceptance of the video and graphic feedback procedure, and (c) adequate demonstration of staff responses and behavior change with the residents. Residents were also asked to rate several components of the training along a three-point Likert scale: (a) acceptance of the presence of the video camera within the living group; (b) acceptance of the video feedback and self-management procedures (i.e., recording of responses, comparison to criterion, and self-reinforcement); and (c) success of the intervention (e.g., decrease of inappropriate behaviors and increase of appropriate behavior). Both the staff and the residents performed the ratings following completion of the study.

Results

Residents with Internalizing Behavior Problems

In Table 2, the mean percentage appropriate interactions per session across the different phases of the study are presented for the residents with internalizing behavior problems. As can be seen, staff training produced an increase in the mean percentage appropriate interactions for Anna, Kate, and Jeremy when compared to baseline. However, they showed no further increase when resident training (i.e., the introduction of video feedback and self-management) was added to the staff training. Treatment effects did not maintain dur-

ing follow-up for Anna or Jeremy, but did maintain for Kate.

In Figure 3, the mean percentages adequate staff responding to appropriate behavior of the residents with internalizing behavior problems and the mean percentage staff initiatives for the different conditions in the study are presented. Staff training produced an increase in the mean percentage adequate staff responding to appropriate target behavior for Anna, Kate, and Jeremy from 72.17% to 83.77% when compared to baseline. The mean percentage staff initiatives also increased from an average of 5.73% during baseline to an average of 10.78% during staff training. Staff plus resident training produced no further increases with the exception of staff initiatives for Jeremy. Increases in adequate staff responding maintained for only Kate at follow-up while increases in staff initiatives maintained for only Anna at follow-up.

Residents with Externalizing Behavior Problems

In Table 3, the mean percentage inappropriate target behavior for Jacky, Tim, and Ronald during the conditions of baseline, resident training, and resident plus staff training is presented. As can be seen, Jacky, Tim, and Ronald showed a clear decrease in the percentage inappropriate behavior from baseline to resident training. Effects of staff training (i.e., video and graphic feedback) plus resident training were also positive for Jacky and Ronald. Tim, however, showed no further decreases for the target behavior.

In Figure 4, the mean percentage adequate staff responses to inappropriate (target) behaviors of the residents with externalizing behavior problems across different phases of the study are presented. As can be seen, staff training in addition to resident training produced an increase in the mean percentage appropriate staff responses to the inappropriate target behaviors of Jacky, Tim, and Ronald when compared to baseline. Baseline measures show a mean percentage appropriate staff responding of 26.64% across residents. The combination of video feedback and self-management training for the residents plus video and graphic feedback for the staff produced an average increase in appropriate staff re-

TABLE 2
Mean Percentage Appropriate Target Behaviors for Residents with Internalizing Behavior Problems during Baseline, Staff Training, Resident plus Staff Training, and Follow-Up Conditions

	Baseline	Resident plus Staff		Follow-Up
		Training	Training	
Anna	32.06	42.05	42.97	30.18
Kate	43.60	57.37	54.46	58.06
Jeremy	46.09	62.82	63.72	44.07

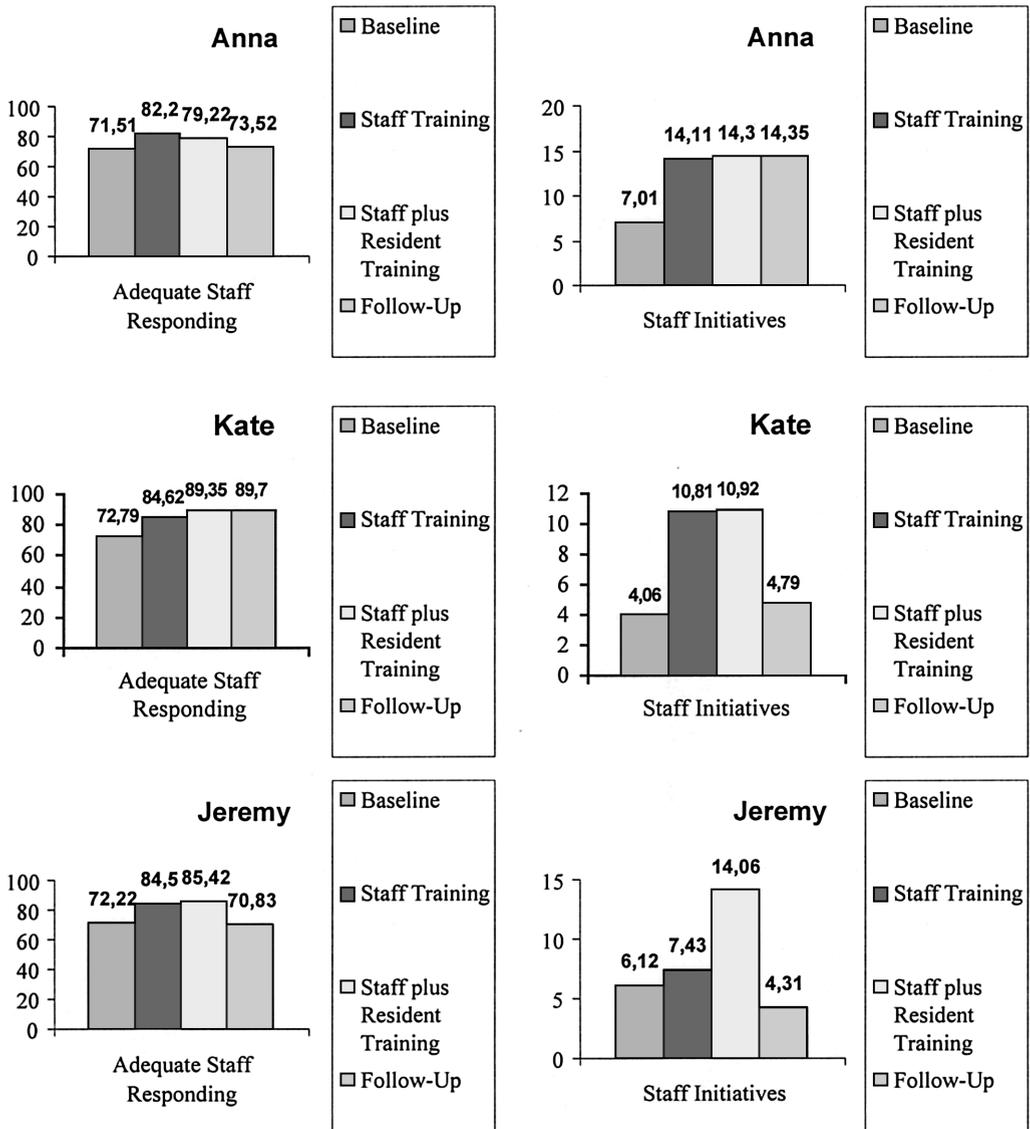


Figure 3. Mean percentage adequate staff responding to appropriate behavior of residents with internalizing behavior problems and staff initiatives during baseline, staff training, resident plus staff training, and follow-up conditions.

sponses to 41.92%. Follow-up measures were only obtained for Jacky and showed maintenance of the treatment effects.

To determine whether generalization occurred for the staff in the present study, the percentage initiatives on the part by staff was also measured for the residents with externalizing behavior problems, with an increase to-

wards Jacky, Tim, and Ronald from 3.43%, 9.61%, and 14.05%, respectively during baseline to 7.49%, 12.86%, and 20.11% during resident plus staff training (see Figure 4). For the only resident with follow-up information, namely Jacky, the increase did maintain.

Given that graphic feedback was presented to each member of the staff, the means per

TABLE 3

Mean Percentage Inappropriate Target Behaviors for Residents with Externalizing Behavior Problems during Baseline, Resident Training, Resident plus Staff Training, and Follow-Up Conditions

	Baseline	Resident Training	Resident plus Staff Training	Follow-Up
Jacky	10.97	6.26	2.08	0.53
Tim	15.89	6.46	6.17	-
Ronald	4.29	1.47	0.74	-

individual staff member are provided in Table 4. As can be seen, large differences across the staff members and thus in the effectiveness of the intervention are evident.

Time-series analysis (Oud, Reelick, Raaymakers, Wouters, & van Eekelen, 1993) was next conducted to test significance of differences between phases of the study. Residents with externalizing behavior problems indeed showed a significant decrease with respect to the percentage inappropriate target behaviors from baseline to resident training, $F(1,2) = 60.83, p = 0.03$. Residents with internalizing behavior problems showed an increase of appropriate interactions from baseline to staff training, though not significant, $F(1,2) = 13.92, p = 0.07$. Increases in the percentages adequate staff responding were significant for both residents with internalizing behavior problems and residents with externalizing behavior problems, $F(1,5) = 61.07, p = 0.00$, whereas the increases in the percentages initiatives were not significant, $F(1,5) = 2.57, p = 0.17$.

Staff and Resident Ratings

All staff members rated both video and graphic feedback as very effective (i.e., scores of 4 and 5) for improving their own responding. All staff members also rated receipt of video feedback as (very) pleasant, although two members emphasized the confrontational nature of such feedback. All residents rated use of the self-management strategies (i.e., recording one’s response, comparing this in-

formation to the criterion, reinforcing oneself) and the use of video feedback as very pleasant and not confrontational. Residents also all judged their behavior as having improved (e.g., decrease of inappropriate target behaviors and increase of appropriate target behaviors) during the lunch, dinner, and tea periods. Both residents and staff rated presence of the camera in the living group as normal (i.e., to the residents) and acceptable (i.e., to the staff members).

Discussion

Findings of the present study corroborate findings of my previous studies (Embregts, 2000, 2002). A training package with self-management and video feedback for improving the social behaviors of youth with mild mental retardation and externalizing behavior problems in particular proved effective. When effects for the training of residents with internalizing behavior problems were examined, however, the addition of resident training to the staff training failed to produce a significant effect. While Falk et al. (1996) attained positive results for children with normal intelligence, the results were less striking for residents with internalizing behavior problems when compared to residents with externalizing behavior problems. Staff members showed a significant increase in correct responses for both residents with externalizing problems and residents with internalizing problems. These results correspond to results of my previous research (2002). Suda and Miltenberger (1993) observed a similar increase in number of positive interactions following the implementation of self-management techniques. Further evidence of effectiveness of the present intervention is provided by the generalization of adequate responding by staff. The mean percentage staff initiatives doubled for both residents with internalizing and residents with externalizing behavior problems while the staff only received feedback with regard to the residents with internalizing behavior problems. Finally, it is important to note that Anna, Kate, and Jeremy were selected on the basis of their internalizing behavior problems (see Section Response Definitions). Anna, Kate, and Jeremy also demonstrated externalizing

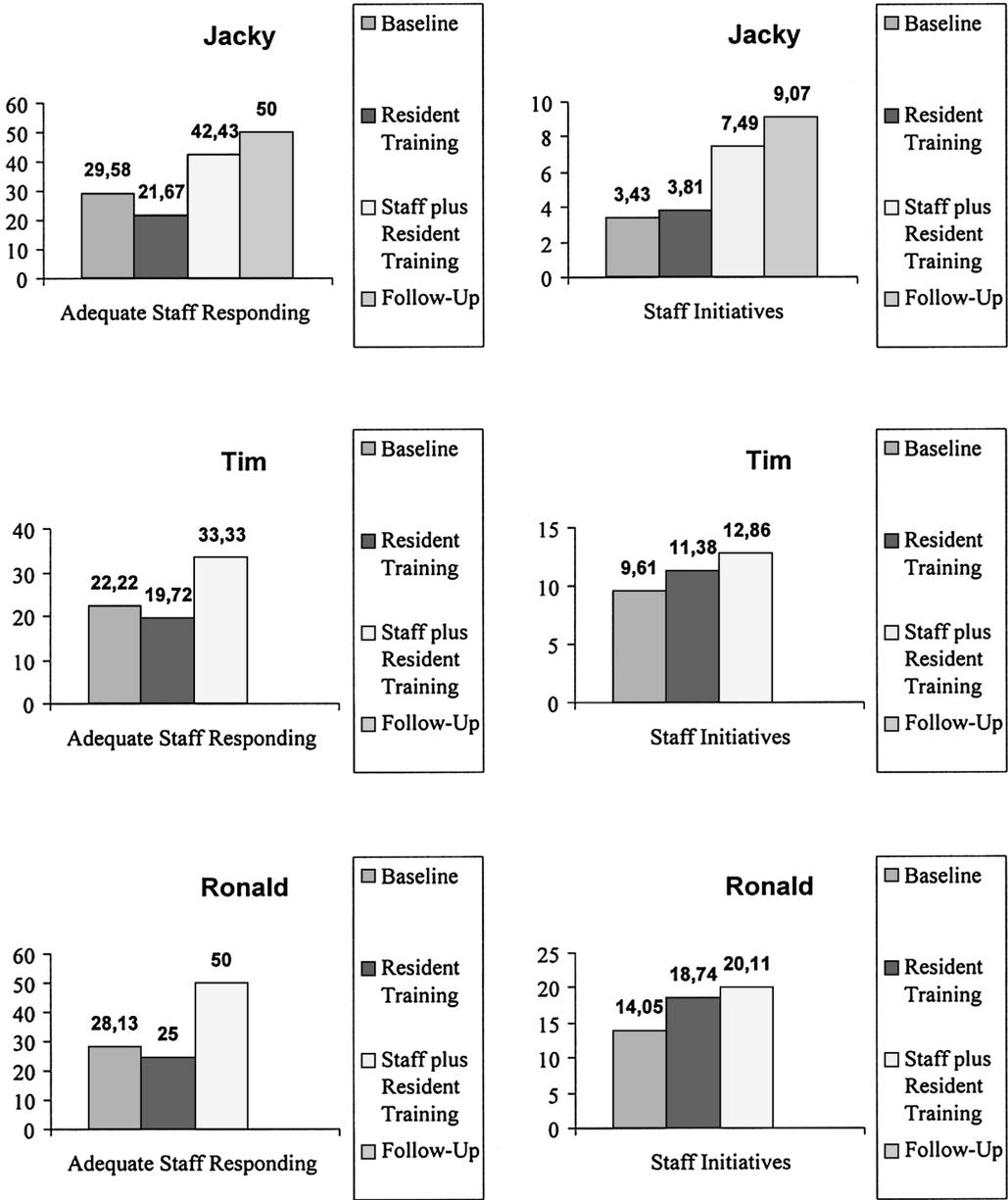


Figure 4. Mean percentage adequate staff responding to inappropriate behavior of residents with externalizing behavior problems and generalized staff initiatives during baseline, resident training, resident plus staff training, and follow-up conditions.

behavior problems as explained by the additional diagnosis of an Oppositional Defiant Disorder. The frequency of the latter behaviors was marginal during the group measurement moments, however. Results nevertheless

show the increase in the percentage target behaviors on the part of these residents to not produce an increase in the percentage inappropriate externalizing behaviors.

One explanation for results found for the

TABLE 4

Mean Percentage Staff Initiatives and Adequate Staff Responding to Residents with Externalizing and Internalizing Behavior Problems during Conditions of Baseline (A) and Resident plus Staff Training (BC) per Staff Member

	<i>Responding Externalizing</i>		<i>Responding Internalizing</i>		<i>Initiatives Externalizing</i>		<i>Initiatives Internalizing</i>	
	A	BC	A	BC	A	BC	A	BC
A	38.96	83.33	82.85	80.00	6.87	10.67	5.42	15.63
B	8.33	58.34	71.83	88.79	8.98	6.27	3.84	3.35
C	25.00	00.00	64.88	90.76	15.35	12.76	8.37	12.61
D	00.00	62.50	66.67	86.61	0.48	4.33	3.19	3.84
E	50.00	00.00	70.76	76.17	5.46	9.18	4.61	11.09
F	-*	-*	90.00	74.74	18.79	11.25	8.70	20.48

* Staff member F had too few measurement points to calculate an average for the category Responding.

decrease of inappropriate target behavior for residents with externalizing behavior problems is that the emphasis in the intervention was on the feedback of visual cues. Individuals with mild mental retardation often have difficulty with verbal comprehension, which may make the provision of visual cues effective. The provision of video feedback based on a resident's own behavior may provide fairly simple and particularly poignant examples of appropriate versus inappropriate behavior. The role of a visual cue initially serving as a stimulus for the nonperformance of a restricted set of responses can then be modified. Visual cues for internalizing behavior problems such as unresponsiveness to social interactions may be less clear and therefore less effective.

Results show clear individual differences across staff with regard to adequate responding to the behavior of the residents and staff initiatives. One explanation for these differences can be sought in the notion of depersonalization, described by Gerits, Verbruggen, and Derksen (2000) as alienation from others, which expresses itself in a negative, cynical, indifferent, and impersonal attitude with respect to the people with which one works on a daily basis. Gerits et al. have shown the staff working in a treatment institution scores significantly higher in this respect to such than the staff working in a residential facility focused on mental retardation. The institution

in which our research was conducted was a treatment facility for children and adolescents with mild mental retardation.

One additional point to be noted is the striking lack of normative standards (Rasing, 1993). In normative comparative research, an attempt should undertaken to determine the extent to which the frequencies of particular behaviors for a group of individuals with mild mental retardation differ from those for a group of individuals with normal intelligence. Our research shows the mean percentage appropriate behavior for residents with internalizing behavior problems during the resident plus staff training phase of intervention to shift in the direction of the mean percentage appropriate behavior for the residents with externalizing behavior problems during the same phase of intervention. During baseline, residents with internalizing behavior problems showed 40.58% (range of 32.06% to 46.09%) appropriate behavior, and residents with externalizing behavior problems showed 63.11% (range of 56.71% to 71.45%) appropriate behavior. During the phase of resident plus staff training, the percentage appropriate behavior for residents with externalizing behavior problems remained more or less the same with an average of 62.04% (range of 56.39% to 71.54%) while the percentage for residents with internalizing behavior problems clearly increased to an average of 53.72% (range of 42.97% to 63.72%). Although justifi-

fication of staff responses or initiatives on the basis of normative comparative research is not possible either, the low percentage staff initiatives observed for both the residents with internalizing behavior problems and the residents with externalizing behavior problems is particularly striking.

The manner of recording target behaviors merits greater examination. As found in previous research (Embregts, 2000, 2002), not only the frequency or incidence of a particular behavior but also the intensity of a behavior can greatly vary depending on a multitude of factors. The choice of observation system for the present study clearly limited our capacity to map externalizing behavior problems with a high intensity but low frequency. With respect to residents with internalizing behavior problems, the observation system also provided a limited amount of insight. Results show the frequency of appropriate interactions increase substantially for the residents with internalizing behavior problems; however, anecdotal information shows the interactions in question to predominantly take the form of short phrases and be responses rather than initiations.

A few other methodological limitations on the present study warrant mention here. First, behavior of the residents was not observed across different settings, while the behaviors that were targeted presumably have great value for residents in all kinds of interactions and across all settings. Second, the extent to which the intervention promoted residents' acceptance by their peers was not assessed. That is, we do not know if residents were accepted more by their peers following the receipt of self-management training and video feedback. Such social validation data may nevertheless be critical for understanding the further maintenance and/or generalization of particular behaviors or patterns of behavior. Third, a componential analysis of effects of the different aspects of intervention was not conducted. This means that we do not know which aspects of intervention are responsible for the observed effects. A multiple treatment effect was nevertheless partially controlled for by providing different sequences of phases.

To summarize, results of this study suggest several areas of future research. First, studies

examining those direct-care staff characteristics that appear to promote or limit effects of intervention are needed. Second, follow-up research aimed at recording of both the quality and quantity of particular behaviors is needed. Finally, long-term follow-up of the effect of intervention should be undertaken to provide insight to the extent which training effects appear to generalize or dissipate over time and thus the need for additional and/or refresher training.

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