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COMPLIANCE TRAINING DECREASES MALADAPTIVE BEHAVIORS IN TWO PEOPLE WITH DEVELOPMENTAL DISABILITIES: REPORT OF FIVE YEARS' TREATMENT

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Compliance training was implemented to decrease non-compliance and avoidance behaviors in two women with severe mental retardation and psychiatric disorders over a five year period. In addition to compliance training, reinforcement schedules and behavioral momentum procedures were also included at various times. The program included training staff at home and at work to ensure generalization across settings and times, direct contact staff were used to assist in implementing compliance procedures at home and vocational trainers were used in the work setting.

During baseline, Vanessa had pervasive non-compliant behaviors. Five years later, her non-compliance episodes had decreased by 89%. There were also significant decreases in aggression, self-abusive behaviors, and duration of non-compliance episodes. There were increases in interaction, productivity work, and reduced use of restraint.

Annette was a woman with Generalized Anxiety Disorder with panic attacks. She had not left the home for several years. Once anxiety and panic attacks were under control maladaptive behaviors, which formerly functioned to avoid anxiety provoking situations, took on a different function, namely avoidance of work demands. Compliance training resulted in a reduction in non-compliance of 40–80% over a five year period. As a result psychoactive medication and restraint have been reduced and staff interaction and participation in campus and community activities have increased. ©1997 John Wiley & Sons, Ltd.

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Mace, Hock, Lalli, West, Belfiore, Pinter, & Brown (1988) define non-compliance as the failure to behave as requested by others and/or as expected by general or local standards of social conduct. They further state that the term non-compliance is specific to request and/or standards of conduct. It is not, by itself, usually indicative of psychopathology. There are relatively few long-term studies regarding non-compliance, particularly in adults with developmental disabilities (Mace *et al.*, 1988). There may be a number of reasons for the scarcity of studies. Non-compliance can be extremely difficult to decrease long

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term due to changes in staff, shortages of staff and consistent staff training to implement a compliance training program accurately and consistently over extensive periods of time. Staff may be reluctant to participate in a program, particularly with a client who also displays episodes of severe aggression or self-abusive behaviors and may also reasonably fear injury to themselves and to the client. In many cases, staff find it easier to avoid making requests or rely on physical or mechanical restraint or psychiatric medications, which prevent injury by restraining or sedating the client but which do not alleviate the problem of non-compliance. Thus, long-term management of non-compliance is an especially challenging clinical problem.

As with any treatment program an accurate functional assessment of both presenting and emerging non-compliant behaviors is important. In the case of non-compliance there may be multiple topographies. Non-compliant behaviors which may be deemed as such in one setting may not represent non-compliance in another setting. Englemann & Colvin (1983) state that ". . . the inappropriate behaviors are not necessarily the same as the learner's non-compliant behaviors. Non-compliance occurs when the learner does not do something that is directly commanded. Inappropriate behaviors are those that the learner may produce while complying . . ." (p. 1).

Another component of compliance training programs involves a strong reinforcement schedule (Englemann & Colvin, 1983). In cases of chronic, sometimes life-long non-compliance, any form of delay or avoidance, or any other behaviors or stimuli associated with avoidance, can become very powerful negative reinforcers. Therefore, a thorough reinforcer assessment is required. Studies have indicated that a strong reinforcer or combination of reinforcers have a greater influence on reinforcing compliance than what the person receives through non-compliance (Englemann & Colvin, 1983; Mace *et al.*, 1988; Mace, 1992). Another concern is maintaining compliance even when the subject is progressing or complying with training procedures.

This study reports the effectiveness of compliance training with two adult women with developmental disabilities. Effectiveness involves an overall increase in compliance as well as other additional positive benefits such as decreases in restraint, increased productivity in the work area and decreased use of psychoactive medications, as well as an increased socialization with others.

CASE STUDY 1: VANESSA

Subject and setting

At the time of the initial training, Vanessa was a 43-year-old Hispanic woman with a diagnosis of severe mental retardation. She was minimally verbal,

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speaking in both English and Spanish. She appeared to understand more than she spoke. Many times she chose not to speak unless upset or to make a request. She had a diagnosis of Organic Personality Disorder (American Psychiatric Association, 1987) which was later changed to Intermittent Explosive Disorder (American Psychiatric Association, 1994). Psychoactive medications administered included fluphenazine and buspirone.

Presenting problem

Vanessa's non-compliance behaviors consisted of a loud rhythmic groan, throwing material, leaving the area, throwing mucus, laying on the floor refusing to get up and refusing to do tasks at home or work. If staff persisted in their requests she would exhibit self-injurious behavior (SIB) including biting herself, slapping her face, and hitting her head on surfaces. Aggression included hitting, kicking, biting, scratching and pulling the other's hair. SIB and aggression always occurred with non-compliance behaviors. Behavioral episodes were so intense as to sometimes cause injury to staff, particularly if she became self-abusive or aggressive. Sometimes, not enough staff were available to assist. The subject had a long history of non-compliance. It was extremely difficult, if not impossible, at times to have her perform required daily scheduled activities. Refused tasks including getting out of bed, taking a bath, grooming, and going to vocational training. As a result, the subject rarely made progress on training objectives and was socially isolated. Staff had become reluctant to approach her because of the intense episodes of self-injurious and aggressive behaviors which would follow if requests were continued.

Functional assessment

An initial functional assessment was conducted in December 1989. It involved reviewing past data, psychiatric clinic data, staff interviews and observations across settings, times, staff and tasks. Records and data indicated non-compliance behaviors were a chronic problem. The assessment revealed aggression and SIB usually centered around requests by staff to perform daily activities such as hygiene skills, going to programming, or participating in leisure activities. Staff avoided Vanessa because of intense SIB and aggression. Thus, over time, the groaning, throwing material, leaving the area and/or

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laying on the floor appeared to function as secondary punishers to staff approaches.

Further assessment indicated that these same behaviors also occurred under other specific environmental conditions. First, Vanessa was very independent. There were occasions when staff would pick out clothing for her to wear. This would cause her to exhibit a maladaptive behavior. Second, on occasions staff would buy her sodas. However, if staff did not have the money to buy the sodas Vanessa would become upset and exhibit the SIB and aggression under compliance situations. However, the majority of the time the behaviors occurred primarily when a demand was placed upon her. A reinforcer assessment involving staff interviews and observations as well as presenting items to her and allowing her to choose what she wanted was completed. Sodas were the most powerful reinforcer. Time alone, tangible items (coin purses, trinkets to keep in the purse) and money were also chosen reinforcers.

In March 1995 the functional assessment was updated using similar assessments methods as before. Three new situations were identified. First, aggression and SIB were sometimes the result of staff attempting to get her to increase social interaction with other consumers. Second, behaviors were sometimes the result of a lack of communication between staff and subject. Third, non-compliance in the work area was the result of the subject's inability to perform a task which was new or too complex for her to perform. The latter, while documented as non-compliance, is not viewed as non-compliance but rather as staff choosing an inappropriate task. An updated reinforcer assessment, using the same procedures as the initial assessment methods, indicated that her reinforcer preferences had changed. The most powerful reinforcer for getting up and going to work in the morning was riding on public transportation versus riding with the other clients in the apartment van. Money was second, followed by coffee, and, fourth were items she called "cositas" (little things).

Intervention

The compliance training procedure was as follows. First, staff had to say the subject's name prior to stating the request. Secondly, if possible, they were to get eye contact. Third, requests were to be no longer than six words. Fourth, staff were to speak slowly and clearly. Finally, when the subject complied with the request reinforcement was to follow immediately (Englemann & Colvin, 1983). Because episodes of non-compliance started in the morning in her home the decision was made to address non-compliance first in the home. Therefore,

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compliance training for Vanessa began in the home in February 1990. A combination of compliance training and positive reinforcement for performing the required task was employed. For example, if the subject got out of bed and dressed within a 10 min period she would receive a reinforcer. However, if after that period she continued to refuse, a team of three to four staff would assist her in the performance of this task. The original team consisted of the psychologist, the two behavior techs and a member of the direct care staff. The direct care staff were rotated in and out of the program so that all staff would have the opportunity to see how the program was implemented.

These procedures were subsequently implemented in the work area. However, in the work area the time in which Vanessa was required to respond was decreased to 5 s because of productivity and the need to get the product to the contractor. If the subject began to perform the task within 5 s she was reinforced with social praise. If at the end of 5 s she did not start working on the task staff would physically assist her using hand over hand prompting in the performance of this task. On occasion a helmet was used to prevent injury due to self-injurious behaviors. Physical restraint was used to prevent aggression while another staff performed the hand over hand procedure. Staff would have to hold her other hand or legs while another member of staff performed the hand over hand prompting procedure. In the work area the vocational trainer took the place of the direct care staff. After a period of time, non-compliance as well as aggression and SIB episodes began to decrease. Compliance training was continued until April 1992. Home and vocational areas were monitored to ensure Vanessa did not regress. In May 1992, compliance training was reinstated at the workshop. The need to reinstate compliance training arose when vocational trainers allowed Vanessa to sit around and refuse to perform her task. Refresher training was also given to veteran and new staff in order to prevent further regression by the subject. From November 1992 through March 1995, compliance training was used intermittently.

In April 1995, compliance training was again discontinued due to low frequencies of non-compliance. Positive reinforcement for task performance and completion was increased. A program to increase social interaction was implemented. Behavioral momentum procedures were added to the program. These procedures were to be used in the vocational area. These procedures would be used when new tasks or steps to a new task were introduced. When presenting Vanessa with a new task they would first have her complete a number of units on a task she liked before introducing the new task. She would complete a specific number of units of the new task after which the old task would be reintroduced. During the time she was working on the new task positive reinforcement was increased.

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Revised procedures

Prior to the start of the program staff were in-serviced on Vanessa's program. Staff were also instructed not to pick out her clothing and not to purchase items, such as cokes, for her. Non-compliance behaviors versus other maladaptive behaviors exhibited when demands were not presented were differentiated to ensure accuracy in data collection. Staff were also trained on compliance training procedures.

Results

The baseline rate of non-compliance was 28 per month. The number of non-compliance episodes in March 1995 was three and represents an 89% decrease

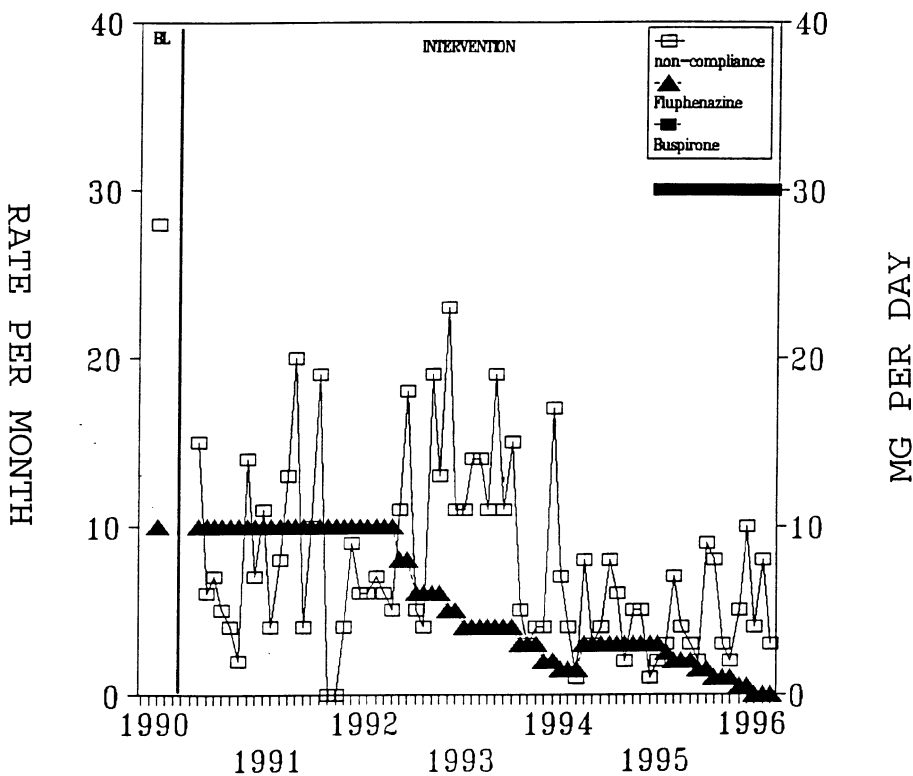

Figure 1. Vanessa's rate of non-compliance and psychotropic medications from 1990 through 1996. As flufenazine was tapered buspirone was substituted.

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over baseline. From October 1995 through March 1996 the mean rate of non-compliance was 5.3 per month for a decrease of 81% below baseline. Baseline rates of aggression and SIB were 10 and 17 per month respectively. Currently, both target behaviors occur less than once or twice a month.

Because the severity of non-compliance episodes began to decrease, as evidenced by decrease in aggression and SIB, a fluphenazine taper was started. Fluphenazine was discontinued in January 1996. Buspirone was initiated when an increase in anxiety-related precursor behaviors was noted. Non-compliance remained low and continued to be redirectable. Prior to compliance training the duration of Vanessa's non-compliance episodes ranged from 60 min to 4 h. Vanessa continues to display brief episodes of non-compliance which staff are able to redirect within a few minutes. Duration of current episodes range from 5 to 30 min. Additionally, Vanessa has improved her productivity in the vocational area. She met criteria on a number of self-help skills objectives. She can now perform many of her self-help skills including bathing, dressing, oral hygiene, and dining either independently or with occasional verbal prompting.

CASE STUDY 2: ANNETTE

Subject and presenting problem

Annette was a 29-year-old Hispanic female with severe mental retardation and Generalized Anxiety Disorder with panic attacks and agoraphobia (American Psychiatric Association, 1994). Annette's major presenting problem was to decrease non-compliance behaviors without exacerbating any underlying anxiety. Although anxiety and panic behaviors appeared to be well controlled with alprazolam and imipramine, it was imperative that compliance training should not result in a resurgence of anxiety-like behaviors. In 1989, Annette rarely left her home. In the home, she limited herself to specific areas such as her bedroom, dining room, bathroom and sitting near the water fountain in the living room. The presenting symptoms of her diagnosis were manifested through hiding her face, crying, pulling away, refusing to get up from the floor, crouching in a corner, screaming, hiding in areas such as the bathroom stall, refusing to leave the home, frequent urination and smearing of feces and mucus. If approached she would sometimes emit a piercing scream or stiffen her body making it difficult to physically move her. She also stripped, smeared mucus and smeared feces.

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Functional assessment

A functional assessment was performed in November 1989. Previous records and data, staff interviews and observations across times and settings and with various staff were used. Annette had difficult times reacting to changes in routine and new or unfamiliar staff. She could usually be found in her bed with the covers pulled over her face. In the living room she would stay in an area which would give her direct access to run to her bedroom. She would rarely venture outside. Prior to desensitization procedures, all programming took place in the home. She rarely, if ever, left the home. In time, when she did leave the home, she would race back to the home the minute she became anxious. Once away from the home and in vocational programming she left the work area and ran back home to hide in her room or in the bathroom. She would sometimes also refuse to get in the van to go to work. Anxiety or panic attacks could be observed through sweaty palms, body sweats and trembling, which were also accompanied by trips every 15 to 20 min to the bathroom. These behaviors had existed for a number of years. However, the behaviors were not limited to occurring upon requests to perform activities. In previous years, she had been taking alprazolam for Generalized Anxiety Disorder, but at the time of the assessment no medications were prescribed. Because she did not speak, we were not able to determine what specifically caused her anxiety as behaviors occurred under almost any situation. The initial assessment led us to believe the behaviors were not the result of non-compliance but were due to an anxiety disorder. A reinforcer assessment involved presenting her with a variety of edible reinforcers, tactile reinforcers and tangible reinforcers. Different items within each group were paired as well as items from across reinforcer groups being paired. The assessment indicated Big Red soda and Fritos to be her most powerful reinforcers. A second functional assessment, performed in June 1993, was initiated when observations indicated that behaviors which were symptomatic of her psychiatric diagnosis now functioned to avoid tasks or activities. For example, in the beginning, Annette could be observed to be rapidly running back home from work. Now she could be observed leisurely walking back home, stopping to pick up flowers or blades of grass. The difference between the behaviors associated with panic and those associated with non-compliance was that in non-compliance behaviors there were no sweaty palms, no body sweats or tremors and no frequent trips to the bathroom. Increasing the schedule of reinforcers was attempted with little success. A second reinforcer assessment was completed. Compliance training was recommended. Edible reinforcers continue to be the most powerful. She

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chooses a variety of edibles and drinks. Other less powerful reinforcers included money to buy items from the vending machine, visits and outings with her sister and staff attention in the form of brushing her hair, applying make-up and outings to the park or out to eat.

Procedures

Densitization and compliance training began in March 1990. A discrete series of steps and reinforcement procedures were used. For example, step one was to keep her hands down for 2 s to receive an edible reinforcer. Once this was performed consistently, Annette had to keep her hands down for 4 s to receive the edible. For less than 4 s, she received social praise. The next step was hands down for 4 s for social praise, and standing up and an edible. A series of steps such as these, were used throughout the desensitization training period. In the beginning, there was an increase in avoidance behaviors with each new step. Compliance training consisted of procedures used to prevent Annette from avoiding tasks or activities. If Annette left the vocational area she was physically escorted back to work immediately. If she refused to work, staff used least to most prompting to have her complete the task. Once she began to work on her own, prompts were faded. These procedures were employed at home and in the vocational area. In time she began to perform the tasks on her own. Prior to the start of the program staff were in-serviced on Annette's program. Staff were also trained on compliance training procedures. The procedures were as follows. First, staff had to say Annette's name prior to stating the request. Secondly, if possible, they were to get eye contact. Third, requests were to be no longer than six words. Fourth, staff were to speak slowly and clearly. Finally, when the subject complied with the request reinforcement was to follow immediately (Englemann & Colvin, 1983).

Results

During baseline, Annette rarely left the home. In March 1990, she moved freely throughout the home, the front porch, side patios and back patios. In April 1990, we began to have her move farther away from the home and eventually to the vocational area. By late May 1990, she began leaving home to attend vocational training. At this time, her anxiety increased such that imipramine was started. During the months of June and July 1990, panic episodes increased significantly due to increased activity in and away from the home. In July 1990, buspirone was added to her medication regimen with some

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appreciable benefit. In August 1990, music therapy was integrated into the program as a relaxation strategy. Imipramine was eventually increased to 200 mg daily. For Annette the use of medication and systematic desensitization effectively decreased her panic behaviors.

Data are shown in Figure 2. The baseline rate of panic behaviors was 352 per month compared to 20 or less per month in June 1993. This was a decrease of 95%. The further use of compliance training to address non-compliance behaviors has resulted in maintaining this decrease. This baseline rate of non-compliance was 20 per month. The current frequency of non-compliance behaviors ranges from four to 12 per month. This is a decrease of 40 to 80%. When compliance with the tasks originally assessed during baseline are assessed compliance with these old tasks is 100%. Current non-compliance mainly relates to new tasks and new situations.

Annette continued to do well, until late November 1991, when imipramine was discontinued and anafranil was substituted. At this point, panic behaviors significantly increased. This continued until March 1992 when anafranil was discontinued and imipramine was reinstated. In July a buspirone taper was started for the purpose of replacing it with alprazolam. Buspirone was discontinued in November 1992. Alprazolam was initiated and titrated to 1 mg three times daily in May 1993. Reinstating the same shaping strategies we were able to return her to programming. In July 1993, compliance training was initiated with no appreciable increase in anxiety or panic behaviors. As anxiety and panic behaviors decreased the psychiatrist began to decrease her alprazolam in August 1994. The slow tapering of alprazolam has resulted in a slight increase in either panic behaviors or non-compliance behaviors. However, these were managed through the use of compliance training and an increase in positive reinforcement.

The use of desensitization and compliance training has also resulted in a decrease of Annette's medication regimen. Secondary benefits included increased interacting in the home as well as away from the home with staff and peers. There has also been increased attendance and productivity in the work area. Most importantly she is visiting her sister at home, something she was not able to do prior to the training. She is also participating in on- and off-campus activities which she had not done prior to the training.

General discussion

For Vanessa non-compliance had been a chronic problem for years prior to the implementation of compliance training. The use of compliance training

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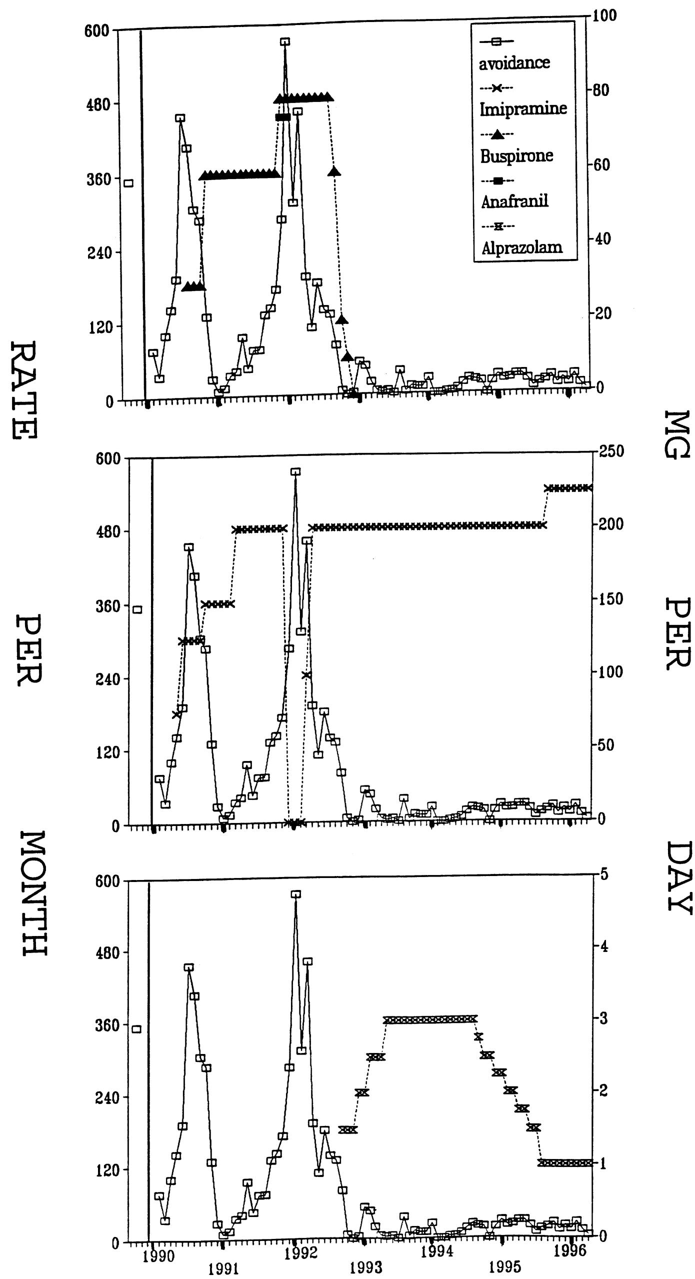

Figure 2. Annette's rates of avoidance behaviors and changes in doses of imipramine, buspirone, anafranil and alprazolam from 1990 through 1996.

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resulted in an 89% decrease from baseline five years later. For Annette, there was a decrease ranging from 40 to 80%. Mace (1992) writes that ". . . cases of chronic non-compliance may require longer periods of treatment to achieve 80% compliance. Complete compliance (100%) may be an unrealistic goal for most people . . .". These results confirm Mace's view. In this study, increases in compliance resulted in a decrease in the frequency of SIB and aggressive behaviors for Vanessa. These results are in line with previous studies. Mace states that a collateral effect of compliance training has been reductions in non-targeted problems such as aggression, self-injury, tantrums, and stereotypy. Taken from Mace (1992). Aside from decreases in these behaviors, there were increases in attendance and productivity in the vocational area, increased independence in performance of self-help skills, increased interaction with others, decreases in restraint, and decreases in medications. This study extends previous research by demonstrating that compliance training can be used over an extended period of time and can maintain behavioral redirections over a 5 year period. Compliance training, combined with anxiolytic medication, when necessary, can also be used successfully for persons whose non-compliance is mediated through avoidance of anxiety and panics.

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