JOURNAL OF APPLIED BEHAVIOR ANALYSIS 1986, 19, 329–336 NUMBER 4 (WINTER 1986)

MODIFICATION OF VERBAL BEHAVIOR OF THE MENTALLY IMPAIRED ELDERLY BY THEIR SPOUSES

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Speaking disorders frequently result in serious consequences for mentally impaired elderly people. Two examples are presented illustrating the modification of both excess and deficit rates of talking via differential reinforcement procedures. Two men exhibiting verbal disorders severe enough to impair social interactions and lead to possible nursing home placement were treated by teaching their spouses to reinforce positive and ignore undesired verbal responses. Problem behaviors were reduced sufficiently to permit continued home care, and alternative positive behaviors were increased. These findings suggest that verbal behavior of the mentally impaired elderly can be affected by applying systematic consequences and can be modified by relatively simple procedures. These procedures provide an alternative to the negative effects of labels associated with either aversive or deficient verbal behaviors, promote more positive activities, and enable continued residence at home. Further, this research provides support for the generality of the utility of training spouses to serve as behavior therapists for the impaired elderly.

DESCRIPTORS: verbal behavior, aging, caregivers of elderly, home-based intervention, differential attention

Bizarre verbalizations and communication deficits in older people contribute to a variety of negative consequences. Inability to communicate one's needs may lead to reduced responsiveness of others and to isolation from the community. Excessive, paranoid, echolalic, or repetitive talking is usually treated as symptomatic of a larger psychiatric problem, whereas low verbal rates, i.e., few initiations and responses, may result in elderly people being diagnosed as depressed, neurologically impaired, or psychotic (Pinkston & Linsk, 1984b). These labels sometimes deprive individuals of community services such as adult day care, nutrition services, respite care, or normal medical care. In extreme cases, verbal problems result in premature or inappropriate institutional relocation.

Members of the community also tend to find inappropriate talking irritating (Frankfather, 1977), which may lead to a reduction of opportunities for elderly individuals to speak, reduction of the number of questions they are asked, and extinction or punishment of talking, even by the family and friends closest to them.

In previous research, verbal responses of the elderly were modified by behavioral techniques (Hoyer, 1973; Hoyer, Kafer, Simpson, & Hoyer, 1974), although these procedures were limited to long-term care facilities and used by professional and paraprofessional staff. These techniques are now being used in family-based programs for elderly individuals (Haley, 1983; Pinkston & Linsk, 1984a, 1984b).

It is reasonable to assume that members of a family or community will not be prepared, nor will they have learned, to respond to difficult verbal behavior or to help reestablish verbal abilities with correct contingencies. Clinical interventions, therefore, should be directed toward the natural community of supporting individuals, and should attempt to alter that community's responses to the elderly person's verbal problems. Because most

This research, part of the Elderly Support Project, was funded by the Illinois Department of Mental Health and Development Disabilities, Grant No. 8065-03, and the National Institute on Aging, Grant No. R01 AG0 2612.

We would like to express our appreciation for consultation and collaboration to A. Kodish, MD, and R. Kahn, PhD, The Gerontological Clinic, The University of Chicago Hospitals; J. S. Schuerman, The School of Social Service Administration, The University of Chicago; S. S. Tobin, State University of New York at Albany; and David Storto, MSW, Rehabilitation Institute of Chicago.

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older individuals live at home, often with family members (U.S. Bureau of the Census, 1983), both the families and home environments should be incorporated as integral components of clinical interventions.

We use a clinical intervention model based on the findings of a behavioral parent training program to treat behavioral problems of children (Pinkston & Herbert-Jackson, 1975) that is adapted to the special characteristics of older families (Green, 1982; Linsk, Pinkston, & Green, 1982; Pinkston & Linsk, 1984a, 1984b). The purposes of this study were (a) to evaluate the effectiveness of differential attention to improve problem verbal behaviors of older people, (b) to investigate the use of the family members of these elderly clients as change agents, and (c) to probe for generality of effects across time for positive gains.

METHOD

Subjects

Subjects were two husband-wife dyads in which the husband was the identified client and the wife was the family caregiver. Both husbands were retired and both wives were homemakers. Each client had identifiable and noticeable problems with verbal behaviors. The families were from very different socioeconomic backgrounds: the Orrs were an upper class family with considerable economic resources, whereas the Fords had limited income and resources. (The names used in this article are fictitious.)

Mr. Orr, 67 years old, had suffered a stroke 3 months prior to intervention. Mr. Ford, 63 years old, had experienced a series of strokes dating back 15 years. The couples were referred to the Elderly Support Project by local hospitals. The wives of both clients identified verbalizations as the primary problem in interacting with their husbands. Mr. Orr showed deficit verbal abilities, particularly by responding incorrectly when asked a question, and low levels of spontaneous or unprompted talk. Mr. Ford, on the other hand, had excessive rates of suspicious and accusing statements directed primarily toward his wife. He frequently accused her of hiding men, staying out all night, and "being a whore." The practitioners in these cases were social workers with graduate degrees and training in behavioral gerontology and rehabilitation.

Although verbal behavior is the focus of this report, independent walking, bathroom use, and time in bed were other problems selected for intervention with Mr. Orr. An intervention was designed for verbal reinforcement of independent walking to encourage him to leave his wheelchair. Unfortunately, the baseline was ascending and, although improvement occurred and the wheelchair was placed in the garage, these results cannot be attributed to the intervention. By comparison, Mr. Orr used the bathroom once a day during baseline, and this was increased to a mean of five times per day during intervention by setting up an interval reminder to use the bathroom. Time in bed was recorded but ceased to be a problem and no intervention was designed. Mrs. Orr was particularly distressed by her inability to improve her husband's talking and the apparent permanence of his disability, and asked for help with this problem. In the Ford case, Mr. Ford's negative accusations were so serious in nature as to constitute a reason for institutional placement, and was the only reason they were referred to the Elderly Support Project.

Settings

All assessment, intervention, and observation interviews were conducted in the clients' homes. The Fords lived in a two-bedroom brick bungalow in a low-income urban neighborhood. The Orrs lived in a large suburban house. The homes were selected as the intervention sites to eliminate the need to program for transfer of learning from the clinic setting to the home.

Data Recording

The wives observed the problem verbalizations and recorded daily frequencies on individualized forms. Because of the differences in the frequency and duration of the verbalizations and the caregiv-

ers' stress caused by the problems, different time sampling methods were used. Mrs. Orr recorded data on four different problems; Mrs. Ford only identified and recorded one problem. Mrs. Orr recorded her husband's spontaneous and unprompted verbalizations and his answers to her questions about his recent activities, as well as her responses both to his answers and to his spontaneous verbalizations. These observations were conducted 1 hour a day when she could observe him closely. Mrs. Ford recorded the frequency and duration of her husband's accusatory verbalizations for day-long intervals. In addition, she recorded her responses to his inappropriate verbalizations.

In addition to daily observations, other pre- and posttest measures, including attitudinal information, social activities, demographics, and physical activities, were recorded. Analysis and presentation of these data are beyond the scope of this paper but can be found in Green (1982).

Reliability

Spot-checks for interobserver reliability were conducted at least twice during baseline and each experimental condition. Mrs. Ford made 45-min audiotape recordings while writing the result of her observations. An independent observer coded the audiotapes on a 10-s occurrence/nonoccurrence time sample, and then calculated reliability by comparing it with the corresponding observation made by Mrs. Ford. In the Orr case, an independent observer recorded simultaneously with Mrs. Orr in her home. Both the observer and Mrs. Orr recorded the frequency of spontaneous and appropriate verbalizations during 1-hour intervals. Reliability scores were calculated by dividing the agreements by the number of agreements plus disagreements of the defined behavior and then multiplying by 100.

Experimental Designs

Intervention was evaluated using single-subject designs (Baer, Wolf, & Risley, 1968; Hersen & Barlow, 1976; Sidman, 1960). The reversal design used to evaluate the Fords was an ABABC, in which A was baseline, B was intervention, and C was a 6-month follow-up. This design was used to evaluate the effect of intervention on paranoid and accusing verbalizations.

A multiple baseline across behaviors design was originally planned for use with the Orrs. Implementation difficulties and the need to intervene rapidly with other problems, however, made it necessary to initiate an alternative weaker design consisting of baseline, intervention, maintenance, and 6-month follow-up conditions. This design was used to evaluate the effect of intervention across spontaneous and appropriate verbalizations.

Procedures

The intervention was conducted within the context of a behavioral family treatment program, which included the following eight components in sequential order for each family: (a) referral; (b) assessment of the home environment by trained observers; (c) definition of behavioral excesses and deficits; (d) definition of desirable outcomes; (e) training of family members in observational techniques; (f) intervention and behavioral education; (g) evaluation of the effects of intervention; and (h) planning maintenance and/or follow-up, and termination. (For a complete description of practice method, see Green, 1982; Pinkston & Linsk, 1984a, 1984b).

Behavioral definitions were written in clear and quantifiable terms and reviewed with the wives for content. The definitions of the problematic verbal behaviors for the Orrs and Fords are as follows:

1. Accusing or suspicious verbalizations: Verbalizations initiated by the client toward another family member with the content of the verbalization pertaining to: (a) having men in the house, (b) calling a family member "no good," "she's a whore," or other degrading verbalization, (c) accusing a family member of having men hidden in the house, or (d) "You want me dead," or verbalization pertaining to client not wanting family member around.

2. Appropriate verbal responses: Verbalizations by the client in response to questions that are cor-

rect by content, duration, and timing. Includes yes or no responses when questions can be answered that way. Responses are inappropriate when content is incorrect, no response is made, or when client says "no soap."

3. Spontaneous verbalizations: Unprompted or uncued verbalizations, including questions, statements, or commands made by the client. Verbalizations must be appropriate by content. For example, "It's snowing out" is inappropriate in the middle of summer and is not recorded as spontaneous.

The behavioral goals for the clients were identified by the spouses and defined in cooperation with the practitioner. Because of the severity of the problems and their importance to family functioning, these goals seemed appropriate. The practitioners taught both wives the use of reinforcement procedures to praise appropriate verbal behaviors. The practitioners taught Mrs. Ford to use differential attention by instruction, demonstration, and role-play. The worker taught her to ignore her husband's suspicious and accusatory verbalizations while reinforcing, through praise and touch, his appropriate verbalizations. The practitioners cautioned Mrs. Ford to ignore all of his accusations and to leave the room if necessary. Following the instructions, the practitioners and Mrs. Ford role-played the intervention, with the worker assuming the role of Mrs. Ford, and Mrs. Ford imitating her husband's high rate accusatory behavior. During this demonstration, the practitioners ignored Mrs. Ford's accusations; Mrs. Ford stated she found it hard to continue when having her accusations disregarded. To assure that Mrs. Ford understood the timing and implementation of the technique, the practitioners and Mrs. Ford reversed roles. Mrs. Ford was then instructed to use differential attention in the home independently while continuing observational recording.

Mrs. Orr learned contingent reinforcement, including touching, praising, and smiling. Response opportunities were arranged by instructing Mrs. Orr to ask her husband a minimum of five questions in a specified hour each day. The questions were to be a mix, requiring both yes or no responses and longer, discussion-type answers. Mrs. Orr was instructed to wait at least 1 min for Mr. Orr to respond to her question. If he gave a correct or appropriate answer, she was to provide contingent touch and praise. The practitioner emphasized that Mrs. Orr should touch Mr. Orr on the left side of his face and body because this side was unaffected by the stroke. Mrs. Orr was taught this contingent reinforcement technique with instructions, demonstrations, and rehearsals. The practitioner described the technique, its uses and potential difficulties, and then demonstrated the technique by asking Mr. Orr a series of questions and reinforcing appropriate responses by touch and praise. Mrs. Orr rehearsed the technique directly with her husband and received differential feedback on her correct use of the technique. The practitioners emphasized the importance of timing and consistency of implementation.

Ongoing evaluation was facilitated by graphing the dependent variables over time and sharing these graphs with each couple every week. Spouses received regular critiques on their use of the behavioral technique and the changes in the problematic verbal behavior. The evaluation process allowed the practitioner to constantly examine and determine the effectiveness of each technique. It further facilitated the specification and documentation of obstacles in implementation. For instance, Mrs. Orr, after behavioral education, did not use the technique as instructed. Data analysis revealed a low rate of contingent reinforcement of spontaneous and appropriate verbalizations. When the practitioners discussed this with her, they found that Mrs. Orr had not understood the timing of the reinforcement and consequently did nothing. Once this misconception was clarified, Mrs. Orr was able to use the technique with improved accuracy.

Specific maintenance procedures were instituted once the effects of intervention stabilized. The practitioners included specific techniques designed to maintain positive gains after they terminated contact (Pinkston, Levitt, Green, Linsk, & Rzepnicki, 1982; Stokes & Baer, 1977). These included the withdrawal of the practitioners' data recording tasks and the transferral of program

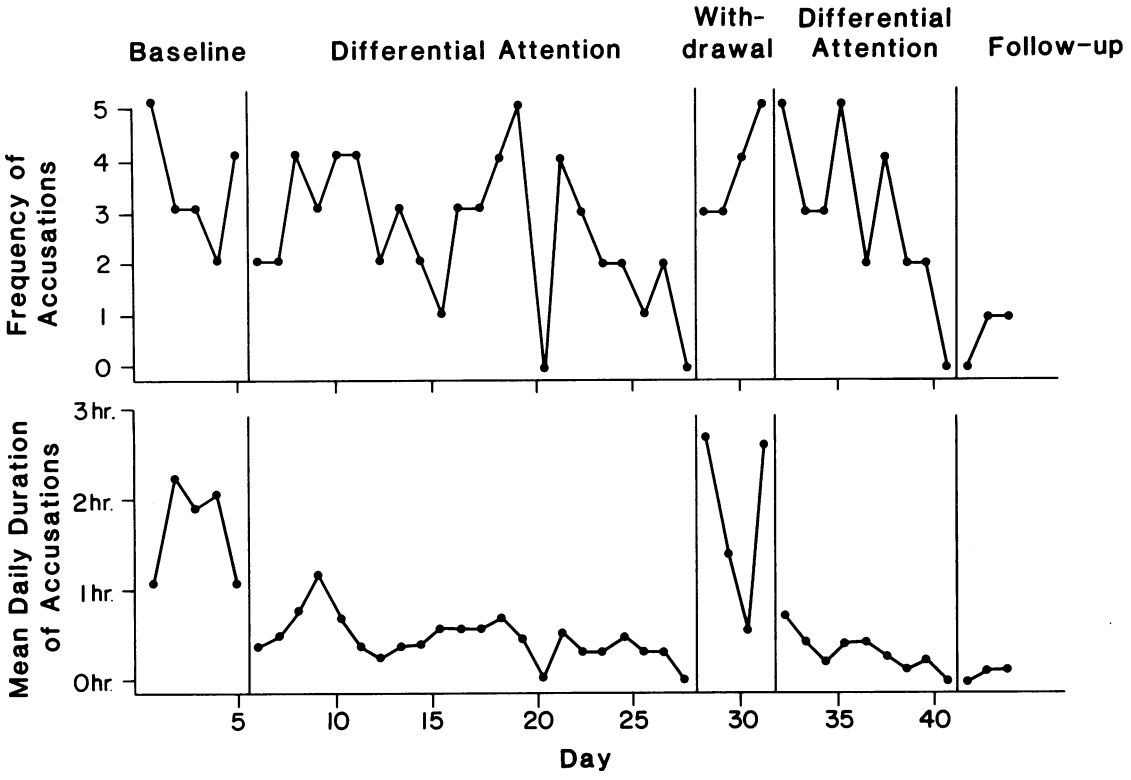

Figure 1. The frequency (upper panel) and duration (lower panel) of Mr. Ford's accusations.

responsibilities to the wives. The wives were instructed to continue the intervention techniques without the weekly support of the practitioners, but to telephone the practitioners if problems arose. The practitioners then terminated the in-home sessions.

Six months following termination, the practitioners contacted the families and reinstituted data recording for several days. During this observational follow-up, the wives recorded the frequency of the targeted behavior and their responses. Reliability checks were conducted once in each case. Termination occurred when the follow-up observations revealed appropriate and stable levels of change.

RESULTS

Reliability

Reliability scores of observations for the Fords revealed a mean agreement of 73% between the two observers for the negative verbalizations as recorded from the audiotape. This somewhat low reliability for Mrs. Ford's observations is not surprising because Mr. Ford's strokes left his speech highly impaired with constant slurring of words and phrases. The reliability for observations of Mr. Orr's verbalizations showed a mean agreement of 94% for appropriate verbalizations and a mean agreement of 90% for the spontaneous verbalizations.

Reliability of the wife's responses was not assessed with the Fords. Mrs. Orr's observations of her responses revealed a mean of 85% interrater agreement with the outside observer.

The Fords

The results of intervention associated with Mrs. Ford's use of differential attention are shown in Figure 1. The data are presented as two separate dimensions of the same behavior: the number of incidents (frequency) of accusing verbalization per

day, and the mean daily length (duration) of these verbalizations. Baseline data revealed an average duration of 72 min and a mean daily frequency of 3.4 incidents. After intervention, the average number of incidents remained unaffected, but the average length of the incidents dramatically decreased. During the last 5 days of the first intervention condition, the average duration of each incident was reduced to only 12 min. When intervention was withdrawn, the mean duration of each incident rose to 108 min, an average higher than baseline mean. After again instituting differential attention, the duration of each incident decreased to a mean level of 19 min. Follow-up observations revealed that the average duration of each incident remained low and that the number of incidents decreased to a daily mean of less than one.

Mrs. Ford recorded her responses following each of Mr. Ford's problematic verbalizations. Data from baseline and reversal indicated that Mrs. Ford discussed or denied the content of the accusations 95% of the time and ignored the inappropriate verbalizations 5% of the time. During intervention and at follow-up, Mrs. Ford reversed this practice and discussed or denied the problem verbalizations 14% of the time and ignored 82% of the incidents. Four percent of the responses could not be classified.

The Orrs

The results of interventions achieved through Mrs. Orr's use of contingent verbal and physical reinforcement are shown in Figure 2. The first 5 days of baseline consisted of a condition in which the recording instrument was developed; although the data are reported, their validity is questionable because of poor instrumentation, implementation, and reliability. Baseline revealed an average 67% appropriate response when prompted. Baseline includes the period when, although instructed, Mrs. Orr did not use the contingent reinforcement. When intervention was accurately applied, Mr. Orr's appropriate responses to his wife's questions increased to an average of 84%. The number of spontaneous verbalizations, unprompted questions, commands, or exclamations during baseline averaged less than one per hour. During the contingent reinforcement procedure, the average number of spontaneous verbalizations increased to a mean of 2.5 per hour.

Maintenance procedures included the systematic withdrawal of data recording and the continued use of reinforcement. Observations by Mrs. Orr were recorded for 7 days, then 6, 5, and so on per week until she totally discontinued them. Minimal shifts in correct responses were noted following the withdrawal of recording. The mean level, during maintenance, of appropriate responses when prompted was 82%, which was maintained during a 6-month follow-up. The data on spontaneous verbalizations show an initial downward shift during maintenance that reversed by the end of the condition. Although the mean during this condition was 2.4, approximately the same as during intervention, the increase toward more spontaneous verbalizations represented an important clinical change because it showed new improvement and greatly encouraged Mrs. Orr. Follow-up observations, while limited to 3 days, support the maintenance of higher rates of spontaneous verbalizations.

Mrs. Orr started to observe and record her responses to the spontaneous and appropriate verbalizations during intervention, so comparisons to baseline cannot be made. Data reveal, however, that Mrs. Orr reinforced her husband's spontaneous and appropriate verbalizations 81.5% of the time during intervention and maintenance.

DISCUSSION

The simple alteration of consequences for both positive and negative verbal behaviors was associated with significant changes in problem verbalizations. Even though the participants had stroke-related impairments, which were associated with age-related physical changes, environmental consequences were shown to be useful in ameliorating problem situations. These findings further confirm that older persons with substantial impairments can change behaviors based on a functional analysis

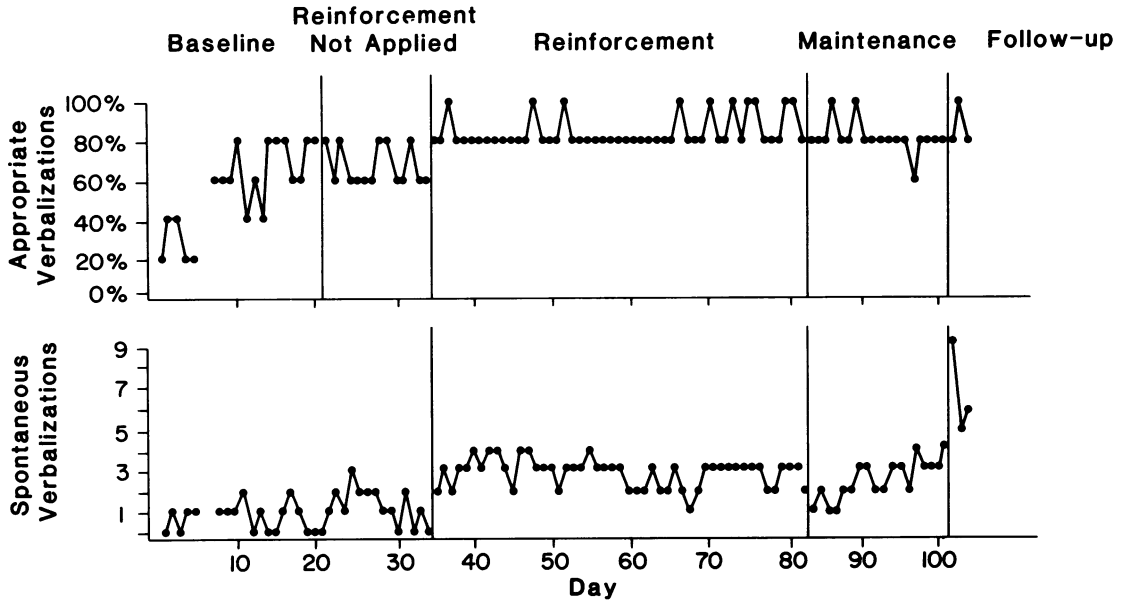

Figure 2. The percentage of appropriate verbalizations of Mr. Orr's total verbalizations (upper panel) and the absolute frequency of his spontaneous verbalizations (lower panel).

of the environment (Haley, 1983; Pinkston & Linsk, 1984a, 1984b); in fact, these changes can extend to conversational behaviors in home settings. This finding is in marked contrast to the frequent effect of limited or excessive verbalizations (i.e., inappropriate labeling). Rather than labeling these men as hopelessly uncommunicative and isolated or inevitably demented, they were shown to be in need of positive verbal stimulation of a focused nature. When positive behaviors were noticed and attention followed them, the desired activities were increased. Differential attention and contingent reinforcement procedures that have been used extensively with younger populations appear to have high potential with impaired elderly individuals when implemented by family members.

These findings support a previous study on mentally impaired elderly people by Blackman, Gehle, and Pinkston (1979), indicating the importance of retaining at least a portion of the intervention procedures to maintain positive treatment effects over time. In our study, these procedures resulted in maintenance of established behavioral gains at a 6-month follow-up and supported continued home residence and expanded activities. The wives of these men learned a realistic alternative to the frustrations of dealing with frequent aversive complaints and accusations. Institutional placement was averted and family care was enhanced.

These findings also support the generality of behavioral procedures to train family members to alter their responses to problem behaviors of the elderly. This home-based model is particularly appropriate for a semiambulatory population because it avoids the problem of transfer of learning from a clinic setting to the home. The implications, then, are that communication can be improved by using operant procedures to increase prosocial behaviors with family caregivers and that these improvements can be maintained over time.

Continued research is required to replicate these procedures with individuals of varying diagnoses and expand the application to various verbal behavior problems. A positive conceptualization of problem behaviors in the elderly should be further developed. Clearly, verbal behavior problems of the elderly should not be used as a rationale for relocation or other significant life changes until an adequate environmental analysis is completed and

possible changes in social responses have been implemented.

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Received August 8, 1985
Final acceptance July 21, 1986