JOURNAL OF APPLIED BEHAVIOR ANALYSIS 1984, 17, 441–451 NUMBER 4 (WINTER 1984)

TEACHING MENSTRUAL CARE TO MENTALLY RETARDED WOMEN: ACQUISITION, GENERALIZATION, AND MAINTENANCE

GINA S. RICHMAN, MAXIN L. REISS, KENNETH E. BAUMAN, AND JON S. BAILEY

FLORIDA STATE UNIVERSTIY, BAINBRIDGE STATE HOSPITAL, AND BEHAVIOR MANAGEMENT CONSULTANTS, INC.

We evaluated a training package designed to teach menstrual care skills to five mild to severely mentally retarded women. Three specific skill areas (changing stained underwear; sanitary napkin; and *both* stained underwear and sanitary napkin) were task analyzed and taught in a sequential manner. Results of a multiple-baseline design across women indicated that the training package was successful in teaching these skills; the women continued to perform the skills during naturally occurring menses up to 5 months following termination of the study.

DESCRIPTORS: menstrual care, task analysis, self-care, multiple baseline, mental retardation

Extensive research has been conducted on teaching self-help skills to mentally retarded persons so that they might function as independently as possible. Some of the programs include: toilet training (Azrin & Foxx, 1971), tooth brushing (Horner & Keilitz, 1975), eating (O'Brien, Bugle, & Azrin, 1972), cooking (Bellamy & Clark, 1977), dressing (Azrin, Schaeffer, & Wesolowski, 1976), and clothing selection (Nutter & Reid, 1978). One skill area that has received little attention involves menstrual care in adolescent and older retarded women.

Kreutner (1981) reported several problems encountered when retarded women do not possess the skills essential for menstrual care. Two such difficulties are that the burden of responsibility often falls on family members or residential personnel who may find this duty aversive; and, because of the potential for soiling and resulting odor due to inappropriate menstrual care, outings in the community may be limited during this time. These problems have often resulted in caregivers, parents, and sometimes the handicapped individual herself requesting that menses be terminated via hysterectomy (Kreutner, 1981; Vitello, 1978).

As an alternative to this drastic measure, some programs have been designed to teach menstrual care skills to mentally retarded females. Hamre-Nietupski and Williams (1977) devised a simulated premenstrual training program to teach two students, prior to the beginning of menstruation, to identify their menstrual period and then follow a hygienic routine. Although the authors reported that this program was effective, no data were presented to show the continued effectiveness of the program once menses occurred.

Hamilton, Allen, Stephens, and Davall (1969) described a 5-step procedure for teaching mentally retarded women to change sanitary napkins. It was difficult to conclude, however, that the training procedure per se was the functional variable because no experimental design was used.

Commercially available materials have been developed specifically to teach menstrual care skills to mentally retarded women (Bender & Valletutti, 1976; Bender, Valletutti, & Bender, 1976; Zelman & Tyser, 1979). However, none of these has been empirically evaluated. As an initial attempt

This investigation was based on a thesis submitted by the first author to The Florida State University in partial fulfillment of the requirements for the M.S. degree in psychology.

The cooperation of the staff at Bainbridge State Hospital is greatly acknowledged. I thank Arletha Love for the time and energy she contributed to this project and acknowledge my observers Vivian Hill and Mary Burch. Special thanks are due Andrew Egel for critiquing previous drafts of the manuscript and providing valuable feedback and support.

Requests for reprints, copies of the task analyses, or listing of the training instructions should be sent to Jon Bailey, Department of Psychology, Florida State University, Tallahassee, Florida 32306.

Table 1
Demographic Characteristics of Participants

Client	Age (years)	Primary diagnosis	IQ	Adaptive function[c]	Years institutionalized
C-1	38	Severely retarded	39[a]	Severe	23
C-2	44	Severely retarded	39[b]	Severe	14
C-3	34	Mildly retarded[f]	60[b]	Moderate	18
C-4[e]	28	Severely retarded	29[a]	Severe	14
C-5	35	Severely retarded	27[d]	Severe	26

[a] Stanford-Binet Intelligence Scale.
[b] Wechsler Adult Intelligence Scale.
[c] AAMD Adaptive Behavior Scale.
[d] Peabody Picture Vocabulary Test.
[e] Nonverbal.
[f] With secondary diagnosis of psychosis.

to demonstrate empirically the effectiveness of a procedure to teach menstrual care skills, Richman, Ponticas, Epps, and Page (in press) used a simulation training procedure whereby mentally retarded adolescents acquired independent menstrual care skills. These skills were taught by modeling with an anatomically correct doll, and skill generalization to the adolescent was measured. The results showed that the skills did generalize. Follow-up measures taken during actual menses showed that the girls retained the skills and used them appropriately during menses up to several months posttreatment.

The purpose of our study was to expand on the aforementioned study by developing a sequential analysis to teach menstrual care skills directly (i.e., without the aid of a model) with a more severely retarded population and to ascertain if the skills would maintain after training.

METHOD

Clients

Five mild to severely retarded female clients ranging in age from 28 to 44 years and living in a large residential facility for the mentally retarded participated. Each participant was selected from a larger pool of residents on the basis of the following criteria: (a) ambulatory; (b) proficient in toilet training skills; (c) dependent on institutional staff for providing menstrual care materials (e.g., sanitary napkins) and instruction during menses; and (d) able to respond to simple (1–2 part) instructions. These specific clients were chosen because each had been identified by the state hospital habilitation team to receive menstrual care skills training.

All participants, with the exception of one nonverbal woman, had limited expressive language skills. Four of the five participants were previously or currently involved in behavior management programs for noncompliance, tantrums, or destructive behavior. Demographic information for each participant is presented in Table 1.

Setting

All phases of this investigation were conducted in the bathroom nearest to each client's bedroom. Each bathroom had two toilets and two sinks adjacent to each other. Staff could view each client's performance without either appearing obtrusive or rearranging the environment (e.g., staff could appear to be washing their hands or an article of clothing). Although each toilet stall had a swinging door, clients were never observed to close it when using the toilet.

Materials

Each client had a 4.7 cm × 2.4 cm × 1.9 cm plastic covered container available at all times that was used to store a clean sanitary napkin, a clean pair of underwear, a paper bag (for the disposal of soiled sanitary napkins) and a plastic bag (for storing soiled underwear until it could be laundered). Underwear and sanitary napkins stained with red food coloring to simulate menstrual blood were used in all phases of the investigation except during follow-up and sessions in which the client was actually menstruating.

Task Analysis

A task analysis (Cuvo, Leaf, & Borakove, 1978; Cronin & Cuvo, 1979) identified three skill areas

as requirements for independent menstrual care: (a) changing stained underwear, (b) changing a stained sanitary napkin, and (c) changing both.

Initially, menses is most likely to occur as a stain on the woman's underwear; as menses continues, a woman will have to engage in many sanitary napkin changes; and it is not uncommon to find, during the heaviest menstrual flow, staining on both the sanitary napkin and underwear. Table 2 describes the underwear task analysis and steps subsumed under it. The number of steps subsumed under the sanitary napkin task analysis and the combined task analysis were 19 and 23, respectively.

Table 2
Task Analysis for Underwear

1. Client walks into bathroom and closes the door.
2. Pulls down underwear below knees and sits on toilet.
3. Pulls up underwear and outerclothes.
4. Walks out of bathroom.
5. Obtains box containing underwear, sanitary napkin, plastic bag, and paper bag.
6. Walks into bathroom and closes door.
7. Washes complete surface of hands and fingers with soap and water so no dirt or residue remains visible on area, dries, throws paper towel in trash.
8. Brings box to stall, pulls down underwear below knees and sits on toilet.
9. Removes soiled underwear.
10. Places soiled underwear in plastic bag.
11. Wipes vaginal area at least once to remove residual blood and drops paper in toilet.
12. Puts on clean pair of underwear.
13. Pulls tab off clean sanitary napkin.
14. Disposes of strip in trashcan.
15. Fastens sticky side of sanitary napkin lengthwise in underwear and presses into place.
16. Pulls up underwear and outerclothes.
17. Flushes toilet.
18. Washes hands as in Step 7.
19. Exits bathroom putting soiled underwear in laundry bag and plastic bag in trash.
20. Places box in bedroom cabinet for storage.

Procedure

Probe. A probe (U.S. Office of Education, 1974) was conducted at the beginning of each session throughout all phases of the investigation. A probe consisted of allowing the client to complete as many steps as she could independently without prompting. When a step was omitted or incorrectly completed, it was followed by a prompt; however, no reinforcement accompanied any correct responses during probes. These sessions were conducted using either a simulation training procedure or during menses when a probe coincided with the client's menstrual cycle. Only one client completed specific phases without going through a menstrual cycle; thus, all probes in her specific case were conducted using the simulation procedure.

Probes were initially administered to establish each client's baseline level of performance. During training, the probe documented the client's progression through each task analysis, and following training, provided verification of generalization, maintenance, and follow-up.

Prior to each session, the container with all of the menstrual care materials was placed on the top shelf of the client's personal cabinet located inside her bedroom. Red artificial food coloring was then applied either to the client's underwear, a sanitary napkin, or both (depending on which task analysis was being assessed or trained). When the task analysis for changing soiled underwear was being assessed/trained, the client was instructed to put on the underwear that had previously been stained with artificial color and any other undergarments she had been wearing. The same procedure was followed when the task analysis for changing a soiled sanitary napkin or the combination was being assessed/trained.

After these preliminary steps were completed, the probe was begun. Each client always started with the task analysis for underwear. The client was given the instruction, "Check your pants" and, if the client either failed to respond within 5 s or responded incorrectly (e.g., a response out of sequence or a response not included on the task analysis), she was prompted on the first step of the task analysis (i.e., "Walk into the bathroom and close the door"). As the client walked toward the bathroom, the experimenter followed behind, allowing the client the opportunity to close the door. Once the client had successfully completed the first step, she had the opportunity to respond independently to the next step in the sequence. Some steps included more than one response (e.g., "Client

walks into the bathroom and closes the door"). In those cases, the client was required to complete each response correctly within that step to proceed to the next step.

If the client did not respond, omitted any part of a step, or responded incorrectly, the correct response to the next step was prompted (i.e., "Pull down your underwear and sit on the toilet"). This procedure was followed until the entire sequence of steps in the task analysis had been performed. A client always had the opportunity to respond indepedently to the next step in the sequence, even when prompting was required to initiate the correct response on the previous step. All independent steps performed throughout the chain were scored as correct. None of the clients ever required more than a verbal instruction prior to emitting a correct response. Had this not been the case, a more structured prompting procedure (i.e., modeling, physical guidance) would have been sequentially applied.

No consequences were provided during these sessions for correct or incorrect responses. Sessions were terminated when the client had correctly performed (prompted or unprompted) each step in the task analysis. After each session was completed, the client received 10 checks on her token card and verbal praise for overall good behavior. If at any point the client had enough checks on her token card, she could exchange them for a preferred object/activity. This token reinforcement procedure, which was in effect before the investigation began, was used in all conditions. Subsequent to the last baseline probe, training was implemented.

Training

Task analysis for underwear. The responses for the underwear task analysis were always trained first. The 20 steps subsumed under this task analysis were taught using a forward chaining procedure, in the sequential order listed in Table 2.

Sessions began with a probe using the procedure previously described. After the probe had been completed, and the client had not reached the 100% criterion, training sessions lasting approximately 15 min were conducted. The task required the client to emit a sequence of behaviors in a specified order. When a step was performed incorrectly, the client was required to repeat that step until a correct response was independently made and then start the chain over.

The rationale for this requirement was based on previous client performance in other self-care areas. It was consistently observed that when clients were required to review only the last sequence of behaviors in a chain, they typically responded by emitting only those previously practiced behaviors when instructed to repeat the entire chain. To avoid this situation, the chain was started from the beginning. This was not time consuming, especially considering the short training time each client required (see Results).

The training sessions started with the instruction, "Check your pants." The client was allowed to proceed through the task analysis as long as she could perform each step correctly without a prompt. Each correct response was followed by social praise (e.g., "That's right," or "Good job"). When prompting was necessary because of an omitted or incorrect response, the client was allowed to perform that step and was then required to start the chain over. Only after the client performed the previous step correctly without prompting was she allowed to progress to the next step in the chain. This remedial sequence continued until the client correctly performed all the steps of the task analysis independently.

Instruction on the first task analysis (underwear) continued until all 20 steps were independently performed for three consecutive sessions. When test performance fell below this criterion, training was immediately resumed following the probe session. Contingent on the criterion performance for three consecutive sessions, a validation session (see *Validation Checks*) was conducted by a novel observer—a staff worker who had not been previously involved in the training.

Sanitary napkin task analysis. A probe on the second task analysis followed the completion of a validation check on the first. This probe was conducted to determine the amount of generalization that had occurred as a result of acquiring

skills on the first task analysis. Some generalization was expected because the three task analyses had many steps in common. The common steps are behaviors the client should engage in whenever menses occurs, regardless of the location of the stain. There is, however, a specific set of behaviors that should occur depending on the location of the stain. These behaviors would not be expected to generalize.

If the client did not attain 100% criterion on this probe, a second probe was conducted a minimum of 4 hours and a maximum of 1 day later. If criterion on this second probe was not met, training was conducted in the manner described earlier.

The second task analysis followed the same criteria as the first: three consecutive performances at 100% had to be reached as well as a validation check at 100%. In addition, the reinforcement contingencies in effect during training on the first task analysis continued to be in effect during training on the second.

Combined task analysis. A generalization probe was conducted on the task analysis that combined all the steps subsumed under the first two (underwear and sanitary napkin) task analyses. This probe occurred after a validation check was conducted on the second task analysis (sanitary napkin). Specifically, the client needed to change *both* underwear and sanitary napkin, a novel situation that required the client to use all the previously acquired behaviors of both task analyses to respond appropriately.

If a client did not achieve the criterion of 100% on the first generalization probe, a training session immediately followed. Probe and training sessions were conducted in the same manner previously described. This sequence occurred until the client achieved one performance of 100%.

Validation checks. Validation sessions were conducted the day after a client met criterion on each of the three task analyses. A novel observer conducted a probe on the same task analysis in which the client had previously reached criterion, to ensure that the procedure was conducted appropriately and that the client's previous performance to criterion could be replicated. This was done to guard against any biases or additional discriminative stimuli that may have been inadvertently provided. Prior to the validation session, the novel observer read the procedures thoroughly and received answers for any questions that remained.

The client was considered to have met criterion during a validation check if all steps in the task analysis were performed correctly. If criterion was not met, a training session conducted by the experimenter immediately followed. A subsequent validation session occurred the following day. Validation and training sessions continued in this manner until the validation criterion was met. The reinforcement contingencies in effect during probe sessions were also in effect during validation sessions, with the novel observer dispensing tokens at the termination of the session.

Maintenance. Maintenance sessions took place for each task analysis 1 week after the client had achieved the 100% criterion on the validation check.

If the client did not independently perform all the skills on the specific task analysis, a training session immediately followed, and a second maintenance session was conducted the next day. This sequence was followed until the client independently performed all the skills in the task analysis being assessed. During these sessions, reinforcement procedures for general on-task behavior identical to those in effect during probe sessions were used.

Follow-up. Follow-up sessions were conducted between 1 and 5 months subsequent to the client's completion of all three task analyses. The first follow-up session was conducted on the task analysis that combined the procedures for changing both stained underwear and sanitary napkin. Thus, these sessions, conducted approximately 1–2 months following the last maintenance session, (depending on client availability) were designed to ascertain whether the clients could perform all the previously acquired skills when actually menstruating.

If a client reached the criterion of 100% during the first probe session, follow-up for that month was terminated until the next 1–3 months' menses (again depending on client availability). If a client did not reach criterion, however, a training session

conducted by the experimenter immediately followed and a follow-up session was conducted the following day. This sequence of events occurred until the client attained the criterion of 100% correct responding. During the first follow-up session, the same reinforcement procedure was in effect as previously described during probe, validation, and maintenance sessions.

During the second follow-up session, the procedure was modified to assess if the client could engage in the appropriate sequence of steps without: (a) the prompt, "Check your pants"; (b) the experimenter who had previously conducted training; and (c) reinforcement contingencies previously in effect. Thus, a client was observed in the procedure as she went through it independently.

These sessions with a second novel observer, served to remove the added discriminative stimulus of the familiar experimenter's presence. The novel observer went into the bathroom with the client and behaved as unobtrusively as possible. From all indications, the clients did not seem to be alerted to the observation taking place because staff frequented the bathrooms routinely to assist other clients in toileting, hand washing, and rinsing soiled clothing.

Because all clients had scheduled activities during the day, staff typically prompted clients between activities to use the bathroom. It was at these times that the client was observed. Thus, the client was not specifically brought into the situation under special circumstances but as part of a daily routine. The observer collected data on whichever situation she found the client in (e.g., stained underwear, stained sanitary napkin, or both). The observer did not give the client any feedback regarding her performance nor did she answer any questions.

If criterion was not met, a training session was conducted after the follow-up session by one of the experimenters. After the training session had been conducted, a follow-up session was taken 1–2 days later (based on observer availability) and again the novel observer collected data in the particular situation she observed the client. Consequently, a client requiring two follow-up sessions may not always have been observed in the same situation (i.e., the same soiled article).

Experimenters and Staff Training

The experimenters who participated in the study were the first author and a direct care staff worker employed at the state hospital. The first author was a doctoral student in Psychology, with three years of experience in behavior analysis, whereas the staff member had no formal training in behavior analysis prior to the onset of the study.

Specific training procedures were set up for the staff member prior to any involvement as either an observer or experimenter. She received copies of the task analyses along with written instructions describing the procedure. After reading and reviewing these materials with the first author, the staff member observed approximately three sessions before assuming the role of reliability observer. After demonstrating competence as an observer, she then served as an experimenter and subsequently assumed major responsibility for implementing the procedure, with the first author serving only as a consultant.

Reliability and Response Recording

Independent observations were conducted during all phases of the investigation. The dependent variable consisted of the number of steps a client could perform independently. Observers recorded responses as either "correct" or "requiring a verbal instruction." If a client required a verbal instruction to complete the entire response or any part of it successfully, the response was scored as a verbal prompt and counted as incorrect.

Two observers independently scored responses across 46% of the sessions equally distributed across conditions. Indices of interobserver agreement were calculated on a response-by-response basis for overall agreement, occurrence agreement and nonoccurrence agreement. When summed across all clients, overall agreement averaged 99% (range, 90% to 100%), occurrence agreement 98% (range, 75% to 100%), and nonoccurrence agreement 96%

(range, 0% to 100%). The large range for nonoccurrence reliability may be explained by the high frequency of correct responses emitted during one session.

Experimental Design

A multiple-baseline across clients design (Baer, Wolf, & Risley, 1968; Bailey & Bostow, 1979; Hersen & Barlow, 1976) was used. Sessions ranged in length from 5 to 15 min with no more than two sessions per day (separated by a minimum of 4 hours) and no more than 3 days between sessions.

RESULTS

Underwear Task Analysis

Figure 1 shows the performance on simulation (open circles) and natural menses probes (closed circles) across consecutive probe sessions for each of the five clients who received training on how to change stained underwear. Clients' correct responding was very low during baseline, ranging from eight correct responses for Client 3 to one correct response for Client 5. There was no difference in correct responding between simulated and natural probes.

With the introduction of training, each client's performance improved significantly. Clients improved from baseline means ranging from 1.3 to 6.7 correct responses to between 14 to 17 correct responses during the first treatment session. The acquisition criterion was reached within 4–11 training sessions (total training time ranging from 1 hr to 2 hr, 45 min).

Validation sessions conducted by a novel observer took place after each client reached criterion for three consecutive sessions. As displayed in Figure 1, Client 1 achieved criterion by the second validation session. Clients 2 and 3 maintained their correct responding at 100% during the first validation session, whereas Client 4 reached criterion by the fourth validation session, and Client 5 reached criterion by the second validation session.

One week after each client had reached criterion on the validation check, a maintenance session was conducted. As shown in Figure 1, all five clients reached criterion on the underwear task analysis during the first session.

Sanitary Napkin Task Analysis

Figure 2 displays responding on all three task analyses for each individual client. Baseline probes on the sanitary napkin task analysis showed that correct responding for these clients was low. On completion of the first task analysis (underwear), all five clients' correct responding on the sanitary napkin task analysis increased substantially.

In addition, two of the five clients did not require direct training before attaining the acquisition criterion for this task analysis. The three clients who required direct training reached criterion within 1–2 sessions (15–30 min total training time). During validation sessions, four of the five clients reached criterion during the first session, and the remaining client (Client 4) reached it in four sessions. During maintenance sessions, three of the five clients reached criterion in the first session, and two clients reached criterion within two sessions.

Combined Task Analysis

Baseline responding on the combined task analysis was similar to that on the other two, with correct responding very low for all five clients. On completion of the previous task analyses for stained underwear and stained sanitary napkin, all clients showed immediate increases in correct responding on the combined task analysis. Three of the five clients achieved the acquisition criterion of 23 steps during the first session without requiring any direct training, and the other two clients required only one training session (15 min) before reaching criterion.

The validation criterion was achieved by three clients within the first session; the other two clients reached criterion by the second session. During maintenance, four of the five clients reached criterion within the first session, whereas one client achieved criterion during the second maintenance session.

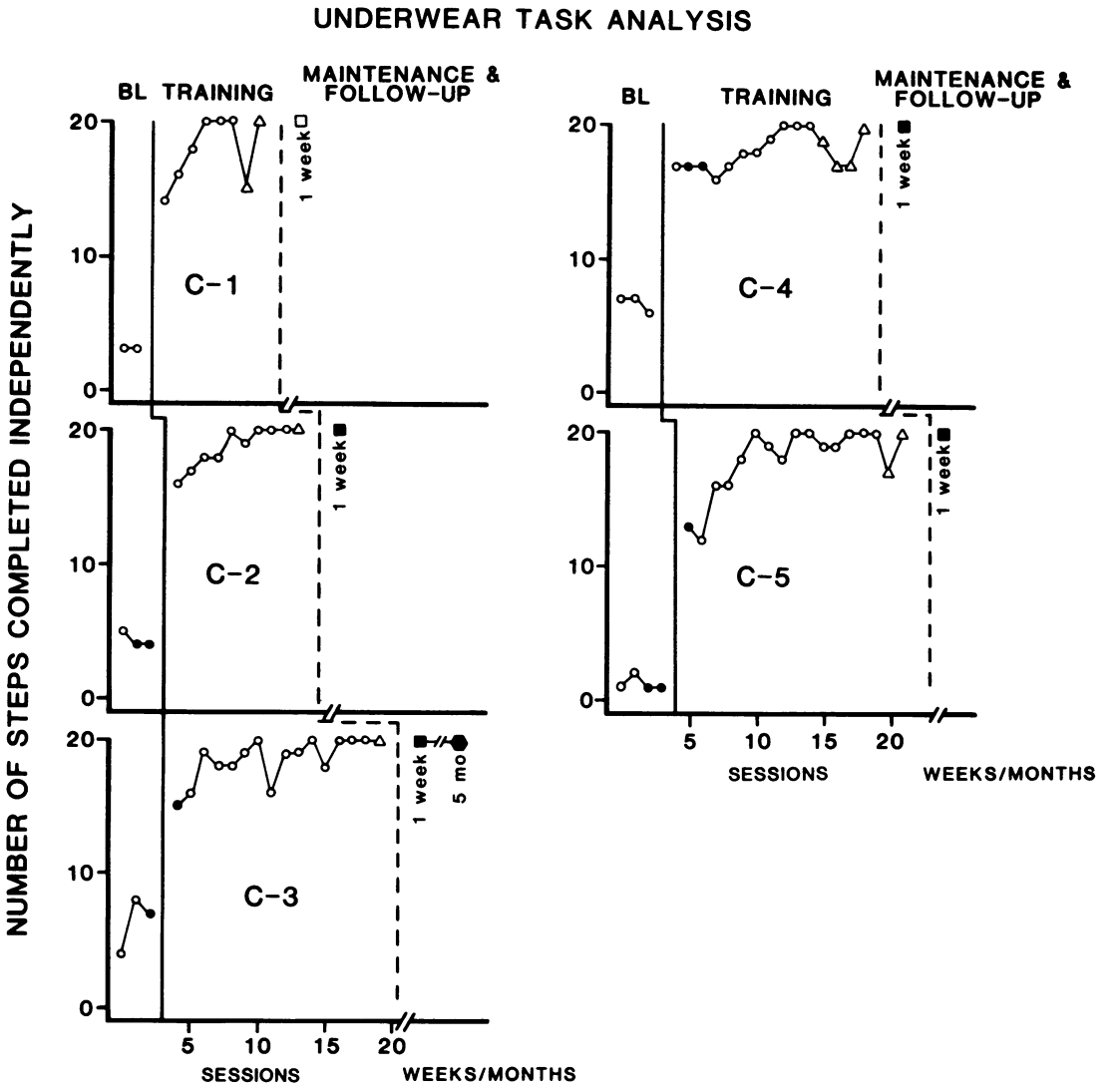

Figure 1. Number of independent steps performed by clients on the skill sequence for changing stained underwear during baseline, training, validation, maintenance, and follow-up. *Probes:* ●—natural menses, ○—simulation, ▲—validation (natural), △—validation (simulation), ■—maintenance (natural), □—maintenance (simulation), ⬢—follow-up (natural).

Follow-up

Two follow-up sessions were conducted while menses was in progress for each individual client. Special circumstances such as client home visits, absent or unavailable staff members, or client sickness prohibited assessment of all five clients during the same month.

During the first follow-up session (conducted 1–2 months subsequent to training), all clients immediately reached criterion. The second follow-up session, conducted by the novel observer, occurred 3–5 months posttreatment for all clients, with one exception. Client 5 could not be assessed for a second month's follow-up due to a disease of unknown etiology, which she developed subsequent to the first month's follow-up. She had

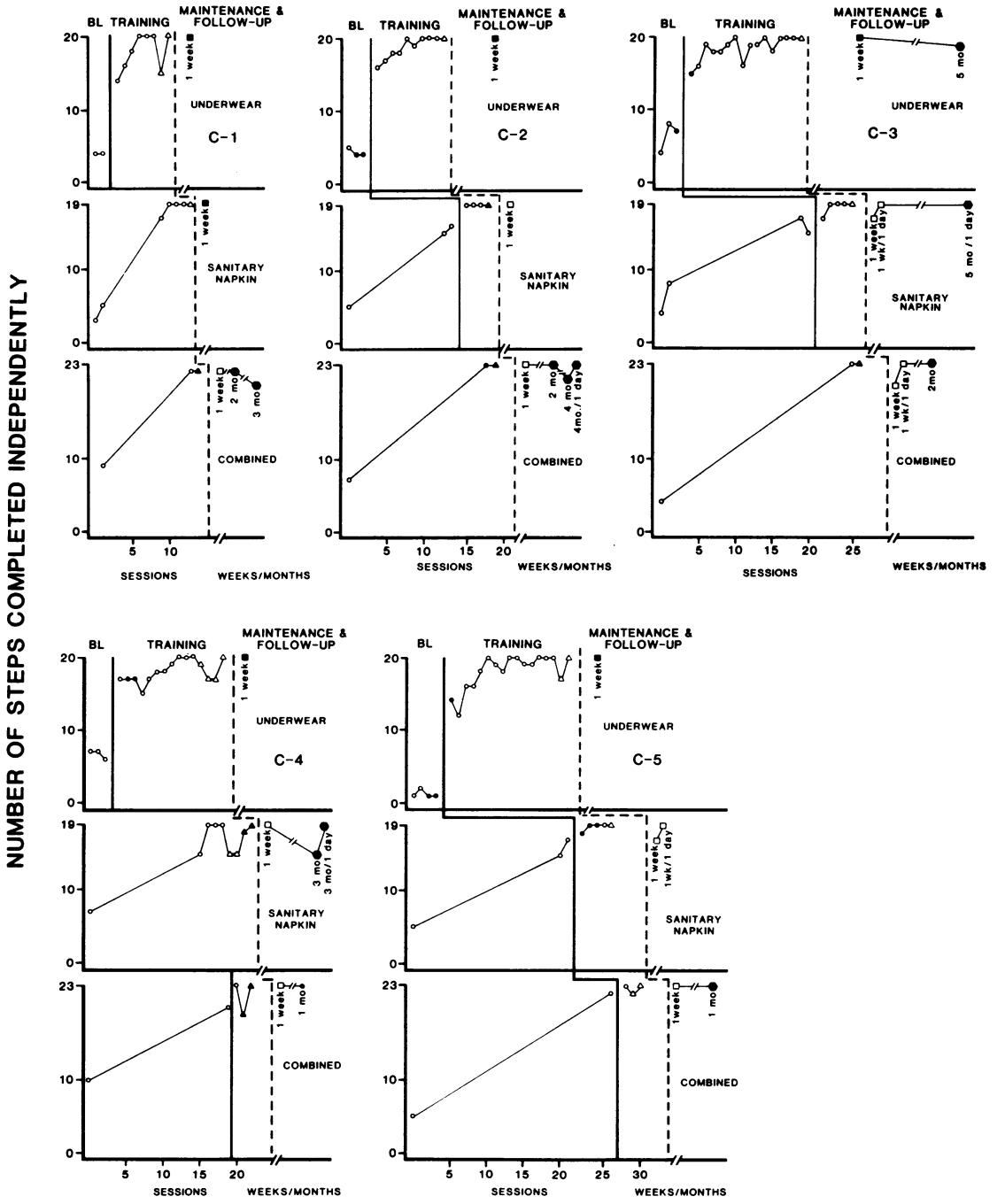

Figure 2. Number of independent steps performed by clients on the skill sequences for changing stained: (a) underwear; (b) sanitary napkin, and (c) underwear *and* sanitary napkin during baseline, training, validation, maintenance, and follow-up. (Probe key same as in Figure 1.)

lost all her self-help skills and was transferred to another facility to undergo further neurological testing.

Three of the four clients who were observed during this follow-up probe maintained a high level of correct responding, with three clients attaining the acquisition criterion within two sessions. A fourth client, who obtained 21/23 correct responses on the combined task analysis during the first session, was again probed during a second follow-up session with no evidence that menses was still in progress. Subsequent to this probe, the client was returned to her original home out of state and was consequently unavailable for further assessment.

Observations taken by the direct care staff indicated that none of the clients engaged in menstrual care behaviors between menses cycles. Informal observations of each client for at least 2 months subsequent to training suggested that clients were correctly obtaining their materials only during menses and were engaging in appropriate toilet behaviors between cycles.

DISCUSSION

The results demonstrate that menstrual care skills can be taught to mentally retarded women and that the skills will generalize and maintain in the natural environment. Baseline data revealed that all clients performed poorly on both simulated and natural probes, although they did emit a small number of correct responses.

Responding during probe sessions increased only after training was introduced. In addition, probe data indicated that clients demonstrated appropriate menstrual care behaviors under natural conditions up to five months following the termination of training.

The generalization from simulated to natural conditions was probably due to several factors: (a) the simulation procedure required responses to the same critical stimuli that were present during menses; (b) the probability that generalization would occur was maximized by conducting training in the bathroom facilities typically used by the clients and by placing supplies in clients' personalized cabinets for easy and immediate access; and (c) naturally occurring menses were incorporated into the course of training. Thus, the only substantial difference between the simulation training and natural conditions during follow-up was a "real" vs. "simulated" stain on the client's underwear, sanitary napkin, or both. All other discriminative stimuli remained essentially the same.

The data also show that responding on the second and third task analyses increased prior to any direct training. This generalization most likely resulted from the number of overlapping steps present in each task analysis. A client trained to wash her hands on the first task analysis, for example, would also be expected to perform this step when assessed on the second and third task analyses. The data support this interpretation by showing that training in one skill area led to increases in redundant aspects of untrained skills but not to novel aspects (different discriminative stimuli) of these skills.

In addition to providing basic training and generalization programming, several characteristics of the present procedure are worth noting. First, implementation of the program did not require the use of staff who were formally trained in the use of applied behavior analysis. Thus, although one of the trainers had prior behavioral training, the second trainer, as well as the observers who conducted validity and follow-up sessions, had no prior background in the use of behavioral techniques. Other studies conducted to teach menstrual hygiene skills to mentally retarded women either used trained nurses or did not mention the staff's level of training (e.g., Hamilton et al., 1969). In this investigation, the hospital staff, despite having had no prior behavioral training, were able to learn the procedure and subsequently train the majority of clients who participated. Thus, the training procedure appears to be one that can be implemented by immediately available staff, given proper training and supervision by behaviorally trained personnel.

Second, the procedure was incorporated into the daily schedule of each client and required little staff

and client training time. Clients did not have to go for any additional time without receiving training nor did sessions exceed the amount of time (15 min) of other daily training sessions.

Third, the total amount of time required to learn three complex chains of behavior ranged from 1.5 to 4.5 hr per client. Considering the complexity of the behaviors being acquired, the previous level of direct care staff training, and the functioning level of the clients, training time was very short.

Fourth, as mentioned previously, the ability to teach adaptive self-help behaviors using a simulated teaching model reduces the duration of the training program by eliminating unnecessary delays between menstrual cycles, while maintaining all of the essential discriminative stimuli necessary to obtain generalization. The effectiveness of the simulation training also replicates the findings of other investigators who have effectively used simulation to teach behaviors such as pedestrian skills (Page, Iwata, & Neef, 1976), public transportation (Neef, Iwata, & Page, 1978), and eating in public places (van den Pol, Iwata, Ivancic, Page, Neef, & Whitley, 1981). Finally, teaching mentally retarded women to be responsible for their menstrual care needs may alleviate the embarrassment resulting from soiled clothing and odors that develop as a function of direct caregivers being too busy to give immediate attention to the problem.

REFERENCES

Azrin, N. H., & Foxx, R. M. (1971). A rapid method of toilet training the institutionalized retarded. *Journal of Applied Behavior Analysis,* **4,** 89–99.

Azrin, N. H., Schaeffer, R. M., & Wesolowski, M. D. (1976). A rapid method of teaching profoundly retarded persons to dress. *Mental Retardation,* **14,** 29–33.

Baer, D. M., Wolf, M. M., & Risley, T. R. (1968). Some current dimensions of applied behavior analysis. *Journal of Applied Behavior Analysis,* **1,** 91–97.

Bailey, J. S., & Bostow, D. E. (1979). Research methods in applied behavior analysis. Tallahassee, FL.

Bellamy, G. T., & Clark, G. (1977). Picture recipe cards as an approach to teaching severely and profoundly retarded adults to cook. *Education and Training of the Mentally Retarded,* **12,** 69–73.

Bender, M., & Valletutti, P. J. (1976). *Teaching the moderately and severely handicapped* (Vol. I). Baltimore: University Park Press.

Bender, M., Valletutti, P. J., & Bender, B. (1976). *Teaching the moderately and severely handicapped* (Vol. II). Baltimore: University Park Press.

Cronin, K. A., & Cuvo, A. J. (1979). Teaching mending skills to mentally retarded adolescents. *Journal of Applied Behavior Analysis,* **12,** 401–406.

Cuvo, A. J., Leaf, R. B., & Borakove, L. S. (1978). Teaching janitorial skills to the mentally retarded; acquisition, generalization, and maintenance. *Journal of Applied Behavior Analysis,* **11,** 345–355.

Hamilton, J., Allen, P., Stephens, L., & Davall, E. (1969). Training mentally retarded females to use sanitary napkins. *Mental Retardation,* **7,** 40–43.

Hamre-Nietupski, S., & Williams, W. (1977). Implementation of selected sex education and social skills to severely handicapped students. *Education and Training of the Mentally Retarded,* **12,** 364–372.

Hersen, M., & Barlow, D. H. (1976). Single case experimental designs: Strategies for studying behavioral change. New York: Pergamon.

Horner, R. D., & Keilitz, I. (1975). Training mentally retarded adolescents to brush their teeth. *Journal of Applied Behavior Analysis,* **8,** 301–309.

Kreutner, A. K. (1981). Sexuality, fertility, and the problems of menstruation in mentally retarded adolescents. *The Pediatric Clinics of North America,* **28,** 475–480.

Neef, N. A., Iwata, B. A., and Page, T. J. (1978). Public transportation training: Classroom vs. in vivo instruction. *Journal of Applied Behavior Analysis,* **11,** 331–344.

Nutter, D., & Reid, D. H. (1978). Teaching retarded women a clothing selection skill using community norms. *Journal of Applied Behavior Analysis,* **11,** 475–487.

O'Brien, F., Bugle, C., & Azrin, N. H. (1972). Training and maintaining a retarded child's proper eating. *Journal of Applied Behavior Analysis,* **5,** 67–72.

Page, T. J., Iwata, B. A., & Neef, N. A. (1976). Teaching pedestrian skills to retarded persons: Generalization from the classroom to the natural environment. *Journal of Applied Behavior Analysis,* **9,** 433–444.

Richman, G. S., Ponticas, Y., Epps, S., & Page, T. J. (in press). Simulation procedures for teaching independent menstrual care to mentally retarded persons. *Applied Research in Mental Retardation.*

U.S. Office of Education. (1974). *How to do M.O.R.E.; A manual of basic teaching strategies.* Project M.O.R.E.: Parsons, KS.

van den Pol, R. A., Iwata, B. A., Ivancic, M. T., Page, T. J., Neef, N. A., & Whitley, F. P. (1981). Teaching the handicapped to eat in public places: Acquisition, generalization, and maintenance of restaurant skills. *Journal of Applied Behavior Analysis,* **14,** 61–69.

Vitello, J. S. (1978). Involuntary sterilization: Recent developments. *Mental Retardation,* **16,** 405–409.

Zelman, D., & Tyser, K. M. (1979). *Essential adult sex education for the mentally retarded,* (2nd Ed.). Madison, WI: James Stanfield Film Associates.

Received December 16, 1983
Final acceptance August 13, 1984