

TOILET TRAINING A SIXTEEN YEAR OLD WITH AUTISM IN A NATURAL SETTING

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INTRODUCTION

Perhaps the most universally acceptable definition of encopresis is that of Fitts and Mann (1976). After a review of more than 100 articles, they found the common defining factor to be one of "social inappropriateness," i.e., defecation in an inappropriate situation. Davies et al. (1977) also stressed, "... evacuation of feces in an inappropriate situation, ..." as the best definition for experimental purposes. The advantages of such a definition are that it avoids both cultural and theoretical bias (Fitts & Mann, 1976) and that it implies clear goals for treatment: independent, self-initiated toileting with relevant skills including toilet hygiene, flushing and clothes management (Groves, 1982).

While the literature on the treatment of encopresis encompasses a variety of methods (Anderson, 1982; Davis et al., 1977; Fitts & Mann, 1976; Tilton, 1980), treatment methods for the client with developmental disabilities (DD) have had a decidedly behavioural orientation since the landmark study of Azrin and Foxx (1971). Operant reinforcement in particular is mentioned in several reviews of the literature as well as being the principle technique of many recent studies (Anderson, 1982; Ashkenazi, 1975; Crowley & Armstrong, 1977; Johnson & Van Bourgondien, 1977; Osarchuk, 1973; Schaefer, 1979; Smith, 1979; Smith et al, 1975).

Of the small body of literature on DD and mentally retarded individuals with encopresis, specific reference to autistic persons with encopresis are even rarer (Freeman & Pribble, 1974; Groves, 1982; Marshall, 1966; Matson, 1977). Among these, a behavioural treatment paradigm seems to be the method of choice as well. Butler (1977) has noted that the advantages of a behavioural approach include simplicity, efficient use of time and staff resources, and an empirically valid means of data collection.

The following case study documents the development and implementation of a specific behaviour management plan for alleviation of an adolescent autistic girl's encopresis. In light of the fact that so little attention has been paid to such cases in the literature, this study deals with behavioural issues affected by both the client's encopresis and her developmental disability. By employing a data-based behaviour tracking system, it also provides a model for teaching appropriate toileting skills and behaviours while a student is participating in a community-based program.

HISTORY

Betsy is an only child born June 1969. She has no marked physical characteristics except slight scoliosis and a weight problem. In 1971, the State Child Development Center diagnosed her severely mentally retarded and mentioned

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hypertrophy of the right leg. In 1975, another State Clinic recommended therapy for delayed speech, and she attended a university speech and hearing clinic before entering kindergarten at a special education co-operative in her home town. In 1976, Betsy was placed in a unit for the severely handicapped at the State Hospital, whose examiner stated that her behaviour was characteristic of the retarded, schizophrenic, and autistic populations. In the fall of 1977, a medical doctor diagnosed Betsy as hyperkinetic with an attention deficit, autism, and confirmed right hemihypertrophy.

She left the State Hospital in 1979 to attend school in a severe/profound classroom, then changed to an autistic classroom near her home; but returned to the State Hospital in early 1980 where she stayed until 1984. Another doctor diagnosed autism and scoliosis in September 1983, and measured her right calf at 35cm and her left at 33cm. The diagnosis of the Institute for the Study of Developmental Disabilities (ISDD) assessment team in January 1984 determined that Betsy had autism according to the DSM III criteria and was profoundly mentally handicapped. In August 1984 Betsy entered the ISDD Transitional Autism Program.

Betsy has no confirmed history of seizures and shows a normal sleep-deprived EEG. CT head scan, Chem 12, electrolyte, and serum creatinine tests are all normal. She is nonverbal, and at 17 is just developing a communication system. This consists of a few signs, a picture communication board, and touching to indicate many of her needs. She enjoys appropriate but repetitive handling of familiar objects or ordering her environment, with careful attention to favoured specifics like keys, locks and doors. Betsy imitates and observes well. She likes people and enjoys being with people; especially her favourites.

Betsy has engaged in hair pulling, pushing, and/or biting, at a rate per day ranging from 1.25 in February 1986 to .31 in September 1986 to .36 in February 1987. This can be extremely severe when Betsy is very upset.

Currently, Betsy is functioning in the profound range of mental retardation. According to the Leiter International Performance Scale, Betsy's nonverbal problem-solving abilities fall between the 20 to 35 IQ level. Her Vineland ages are as follows: Communication domain: receptive 1-7, expressive 0-7; daily living domain: personal 2-11, domestic 7-6, community 1-9; socialisation domain: inter-personal 1-1, play/leisure 1-9, coping 1-4; gross motor 3-1; and fine motor 3-6.

STATEMENT OF PROBLEM

When Betsy first entered the Center's programme there was concern about her constipation and retention. This had only been mentioned in passing in any State Hospital reports. However, upon interviewing her mother and people at the State Hospital, it is doubtful that Betsy was ever bowel trained. Apparently she had constipation problems as a preschooler and over the years various diets, laxatives, suppositories and enemas were used to take care of this problem. Her mother reported problems with smearing at home to the extent that she never let her out of her sight and slept in the room with her at night.

When Betsy entered the ISDD programme, diet, charting and consultations with the doctor were tried and adjustments made. Betsy continued to have constipation, retention and seepage. In December 1984, she was seen in a gastroenterology clinic for this problem. X-rays were taken and Ducolax was prescribed for three days to clean out the bowel impaction. Betsy would not permit

a rectal exam. The doctors said that she had a megacolon and large rectal vault due to years of bowel retention (Fitts & Mann, 1976; Hersov, 1985). This was again confirmed in April 1985 by the surgeon who performed an emergency appendectomy on Betsy.

Betsy was placed on 2 ½ oz. of mineral oil two times a day from December to March to avoid retention and teach Betsy to release, although it was doubtful that she could feel that sensation (Levine, 1982). During this time soiling and smearing became major problems (Figure 1) and diapers and clean up procedures had to be used. Betsy did not have bowel movements in the toilet and it became clear that her problem would have to also be managed with a long term behavioural plan.

Medications

Betsy has been taking laxatives on a continuous schedule to address her problem with retention. One effect of retention was bowel seepage or staining, which gave some indication that Betsy was retaining and would probably have a bowel movement soon (Fitts & Mann, 1976; Groves, 1982). The laxatives have at different times included Colace, Ducalax, bran cereal, Naturacil (psyllium seed candies) and mineral oil. Since July 1985, the laxatives have consistently remained as mineral oil and Naturacil, with Ducalax being given for one three-day period in October, 1985, to end a long period of retention. The Naturacil dosage has remained consistent at two candies twice daily. The mineral oil dosage was experimentally adjusted in order to find the most beneficial level and then maintained at that level on a doctor's advice (Table 1).

Table 1

Mineral Oil Dosage and Toileting Success Rate

Dates	Dosages	Success Rate	Comments
1/7-2/11	½ oz. once daily	3/15 or 20%	Periods of retention, staining not predictive of bowel movements.
2/11-2/19	1 oz. twice daily	1/5 or 20%	Retention, long periods of staining before bowel movements.
2/20-5/1	½ oz. twice daily	23/46 or 50%	Regular movements, little retention, staining generally predictive of bowel movements.
5/2-6/10	½ oz. once daily	9/21 or 43%	More retention, staining not as predictive, smearing sharply increased.
6/11-6/23	½ oz. twice daily	8/11 or 72%	Regular movements, staining generally predictive, smearing decreased.

The data show that $\frac{1}{2}$ ounce of mineral oil twice daily has been the most beneficial dosage level for Betsy. When it was cut in half for the period of May 2 - June 10, Betsy's increasing success rate immediately took a downturn; more retention was noted as well as more difficulty in having a bowel movement. Smearing also increased. When the mineral oil was returned to the dosage of $\frac{1}{2}$ ounce twice daily, Betsy's success rate immediately increased to 72%; regularity returned, staining became more predictive of movements, and difficulty in having bowel movements decreased. Since her toileting plan had been in effect since the previous summer, this was not considered to be a significant variable.

IMPLEMENTATION OF TOILETING PLAN

A specific behaviour management plan for dealing with Betsy's encopresis and smearing behaviours has been in effect since July, 1985. During this time, the plan was revised periodically and meetings were held bi-monthly to discuss ideas and motivate staff. As Betsy made progress or problems arose, the plan was modified and refined. Both her toileting skills and the plan to teach them to her began to show steady progress from October 1985 to September 1986.

Betsy's toileting plan was built around shaping the basic behaviour of using the toilet and being clean (Doleys & Arnold, 1975). These include the components of: (1) scheduled opportunities, 2) reinforcement, (3) positive practice, and (4) communications of expectations (Butler, 1977; Crowley & Armstrong, 1977; Dixon & Saudargas, 1980; Matson, 1977; Wright & Walker, 1978). Maintenance and generalization were planned and implemented with the programme. These components will be discussed individually along with other significant issues that arose as Betsy's plan and toileting skills developed.

SHAPING TOILETING BEHAVIOUR

Scheduled Opportunities

The routine of a scheduled toileting opportunity was established (Levine, 1982; Levine & Bakow, 1976; Levine & Elliott, 1970; Wright & Walker, 1978). Betsy was directed to the toilet at scheduled times during the day, more frequently during times when she had been noted to have bowel movements more often (Smith, 1979). For the first six months these were kept very consistent with only shifts of less than 15 minutes to accommodate scheduling needs. The majority of sits were done on the toilet she preferred in her home-life setting. *When the plan was revised in October 1985, several sits during the mid-day, while she was in school, were eliminated.* At the end of February 1986, three more sits were eliminated because it was thought that she understood what was expected of her, and the sits were now too frequent. These sits were replaced with pants checks (Doleys & Arnold, 1975; Dunlap et al, 1984; Smith, 1979). In March she was moved back to full days in the school setting. In May, toileting opportunities were streamlined to ten targeted sits each day, with an effort to work these sits naturally into her schedule (Azrin & Foxx, 1971).

Although most of the time Betsy was compliant, at times she was resistant to following directions to sit on the toilet. Refusals became more of a problem in February, and a procedure was developed to teach her to communicate refusal with a sign for "no" and staff responding: "Okay, toilet in five minutes". She could repeat the refusal once more, but after that she was physically assisted

to the toilet, if she was not agitated. Being playfully non-compliant was a game of Betsy's where she might actually enjoy the physical assistance at times.

Reinforcement

Reinforcement for approximations of appropriate toileting behaviours consisted of attention, verbal praise (Crowley & Armstrong, 1977; Marshall, 1966), and small edible rewards such as celery pieces or raisins (Ashkenazi, 1975). Reinforcement of actual toileting success, bowel movements in the toilet, were rewarded with ice cream or sherbet, for dietary reasons, and much cheering and praise (Dixon & Saudargas, 1980; Groves, 1982). At first Betsy was taken into the community for the sherbet; the car ride and community visit itself were rewarding to her. As her successes increased in frequency, a differentiation of reinforcement was developed to respond to unique features of her behaviour (Groves, 1982). For a "half-successful sit", one in which some significant amount of bowel movement did not go in the toilet, but rather on the toilet seat or floor around the toilet, Betsy was given sherbet at the DTC rather than going out into the community (after a month, this behaviour began to decrease significantly in mid-April 1986). For a success where most, or all, of the bowel movement did go into the toilet, Betsy was taken into the community for sherbet or orange juice. For any self-initiated success, Betsy went into the community for both sherbet and shopping for a new clothing item. This was the final behaviour we expected from Betsy, and therefore wanted to reinforce it very strongly (Berg et al, 1983; Wright & Walker, 1978).

A second edible reinforcement was made contingent on her looking in the toilet at the end of the sit, to encourage desensitization to a dirty toilet. Betsy had an aversion to toilets being dirty, was constantly flushing and would not look into a toilet. The amount of attention given to Betsy during a routine was gradually reduced, both to offer her more privacy and enhance the reinforcement value of attention for toileting successes (Dunlop et al., 1984). Betsy's access to toilet paper was removed for a time when she would wipe a bowel movement into the toilet rather than push it out. Access to toilet paper was gradually returned as she had more successes with a more appropriate "gravity-assisted" style of defecating. Betsy still needs reminders to wipe from the back only and to "reach back" in order to wipe more hygenically.

Positive Practice

positive practice was seen as an important element of communicating the expectation to Betsy that she consistently have her bowel movements in the toilet (Dunlap et al., 1984). The plan was to carry through with positive practice unless her agitation or aggression made it impossible to do so, and in that case to have her sit out for five minutes; then try again. Physically assisting her to the toilet worked better than repeated verbal cues if she was not complying with positive practice procedures.

Communication of Expectations

Pants checks are an indirect way of communicating expectations that bowel movements belong in the toilet, and nowhere else. Positive practice is a more direct method. During her scheduled toileting routines, three modes of communication were used: verbal communication, sign communication and pictures. All three modes were used to communicate "If you go in the toilet, you get ice

cream". Betsy's responses indicated that she understood this expectation after repeated situational exposures. Receiving ice cream for success on the toilet was perhaps the most significant way to communicate expectations for toileting behaviour and consequences for success. Later, receiving a shopping trip for self-initiated sits seemed to communicate that the staff was extra pleased with this behaviour.

From January until March, 1986, a multi-media presentation was shown to Betsy two or three times a day before scheduled routines. Videotape of a successful sit and a trip out for ice cream was combined with audio taped encouragement of "Go in the toilet for ice cream" along with pictures on a communication board showing a toilet, car and an ice cream cone. Betsy did not show any increase in toileting success during the run of this presentation, and did not attend well to the video portion. Therefore, the plan was discontinued. However, posters of ice cream were left in each bathroom and this seemed to help staff communicate the desired behaviours to Betsy.

The frequency of Betsy's bowel accidents necessitated her wearing diapers. As she progressed, an effort was made to normalize her behaviour and diaper use was reduced beginning in January, 1986. At first Betsy was kept out of diapers for six hours daily when special assistants to help her with her toileting program were present. By February, Betsy was having bowel movements more in her diapers than out of them. In addition, at times, she actually put a diaper on herself and then messed in it. At the beginning of April, 1986, as Betsy's toileting success rate was increasing dramatically (Figure 3), routine diaper use was discontinued for all waking hours. Diapers were kept in each environment so that Betsy had access to them, in case she wanted to put one on as a communication of a need to have a bowel movement. Special rubber pants were used in a community pool at this time.

SHAPING CLEAN BEHAVIOUR

Reinforcing Clean Pants

Betsy's pants were always clean during pants checks; if they were dirty she didn't wait for someone else to discover it. Pants checks were brief and often. Betsy seemed to enjoy the attention and lavish verbal praise for keeping her pants clean. She slowly learned to independently touch the back of her pants to confirm their cleanliness and also to sign "clean". Occasionally she required several cues and physical assistance to carry through with these behaviours, apparently when she was not in the mood to perform. It is believed that Betsy did learn to understand a pants check, and thus this performance was not merely a meaningless ritual to her.

Opportunities to Clean the Environment

Betsy began to show a willingness to help clean up both herself and the environment after a bowel accident in December, 1984. At times she played in and smeared her feces (Figure 2 begins in June 1985). Even at these times she would often clean the environment appropriately when directed to do so, although at other times she was non-compliant and continued to smear.

Because of her general willingness to clean the environment along with her tendency to smear her feces, it was thought for quite some time that Betsy was reinforced by cleaning the environment after a bowel accident, and generally

was directed to take a shower while staff cleaned the environment without her assistance. In July 1985, the toileting plan specifically stated that Betsy was not to participate in any environmental cleaning after a mess. Furthermore, she was only allowed to bathe if hygienic considerations demanded it. Otherwise, she was to be cleaned with moist towels and towelettes.

Betsy continued to be amenable to cleaning both herself and the environment. She was gradually allowed to help with cleaning, first of herself and then the environment, as long as she didn't try to smear. This worked well on an experimental basis, and was formally put into the plan in the beginning of January, 1986. Helping to clean up the environment was put into the plan in the middle of May, 1986. Betsy made considerable progress in learning these cleaning skills. She required some assistance with both types of cleaning, but made significant strides in gaining independence in these tasks.

Desensitization to Dirty Toilet

Betsy made great progress in overcoming her desire to keep the toilet clean. She sometimes is concerned with making sure it is flushed, but doesn't mind dirtying it. Specific desensitization exercises were designed to have her look in the toilet, then receive a reward. This was practiced several times a day, sometimes with dirty water in the toilet. The first sign of progress was a gradual willingness to look into a toilet bowl that had toilet paper in it. The plan was then revised to having her look in the toilet after each routine, with a second reinforcement contingent on her looking. At this time she began cleaning toilets in apartments; then office buildings as part of her work experience program; but as an extension of her desensitization plan as well.

Another strategy for desensitizing Betsy to the toilet was to put bowel movement from a mess into the toilet. Betsy was very resistant to this procedure at first, but progressed to independently initiating putting bowel movements from a mess in the toilet herself and washing out her soiled underwear in the toilet. The most conclusive evidence for Betsy's progress in this area has been her increased willingness to have bowel movements in the toilet (Figure 3).

MAINTENANCE AND GENERALIZATION

Staff Morale

School, home and community environments are not designed for easy clean up of bowel messes. Betsy and the environment often smelled. Extra help was hired to implement hygienic clean up and to implement the toileting plan. Special equipment and clean up materials were purchased and kept in each environment, including the car.

Regular meetings were held with involved staff to discuss details and check progress and problems. A consultant was hired to help make the adjustments. Staying with the plan in spite of set-backs, inconsistencies, and both mild and severe aggression took stamina and support. Betsy needed advocates and her advocates needed feedback. As she progressed with toileting she also could participate in a wider variety of activities including swimming, canoeing, Girls' Club, eating out, picnics and shopping; all which she and the staff enjoyed. Keeping accurate records and providing information across one day, then several days, was imperative to make adjustments and continue progress. Without accurate data keeping and analysis it is doubtful that such a lengthy and complicated program could have had success.

Tracking Toilet Behaviour

The detailed means of recording Betsy's toileting behaviour actually grew out of a behavioural tracking system already in place at the Center. For this project, the behaviours that were tracked included (1) bowel movement in the toilet, (2) messing pants, (3) wetting off the toilet, and (4) smearing bowel movement. Self-initiated toilet sits were added to Betsy's targeted behaviour list when it became clear that this step needed to be incorporated to achieve the final measure of independence.

Tracking involved recording the date, time, duration, location, antecedent, staff involved, and staff taking action. This information was then compiled and entered into an IBM-compatible computer. Using programs written by an ISDD research associate in dBase III software, targeted behaviours were printed out bi-weekly and monthly rates per day were calculated (these programs are currently being field tested in several group homes). It was these printouts which provided the necessary feedback that allowed staff to assess the ongoing effectiveness of Betsy's program. Targeted behaviours were of course supplemented by Betsy's daily toileting log which included information about each sit (scheduled and unscheduled), staff involved, time, and mode of reinforcement. Both modes of data collection were used in the community as well as at the Center and on home visits.

Development of Another Problem Behaviour

It appeared that as Betsy complied with the toileting program she lost control of an important part of her routine (Landman et al., 1986). Even though the program was made as positive as possible, she had to learn to make her body do something that other people wanted her to do. She lashed out with scratches and hits at first; especially around toilet times or clean up times. Then she began to aggress when other rituals or compulsions were interrupted and she seemed to develop more of these compulsions. At times her aggression was severe.

In May and July staff received medical treatment for bites and whip lashes from Betsy. The aggression would appear suddenly after minor warning signs such as foot stomps or biting her tongue and lasted for some time. Restraint and isolation were used. Lithium was prescribed to try to even out her moods and except for an episode in August, this has been effective in lessening the intensity of the aggression as well as the frequency. Both staff reports and the literature on symptom substitution lend support to the idea that Betsy's aggression was a primary behaviour; i.e., one that had been present earlier and was therefore more difficult to manage than a mere "substitute" for encopretic behaviour (Balson, 1973; Levine et al., 1980). Librium had been tried the month before as well as Ponstel for menstrual cramps with no change effected. It is hoped that as Betsy has success in many areas her ability to cope and accept correction and interruption of compulsions will also increase. Helping her feel good about herself has been implemented through wearing appropriate clothes, trying make-up, going places and teaching her age-appropriate community skills. Being clean and smelling nice as well as communicating and interacting have increased the positive strokes Betsy receives from others.

Increasing Success and Independence

Betsy's current success rate is high: 86% of her bowel movements were in the toilet in November 1986 with the subsequent six months (through May 1987)

all 100% successful (Table II). Smearing has not been reported for seven months. Before that time if she had an infrequent accident she would still try to clean and occasionally smeared some of it. Betsy is now self-initiating sitting on the toilet for bowel movements 50-100% of the time. In order to encourage independence in initiating sitting on the toilet, the number of staff-directed toileting sits were reduced several times. These sits are now scheduled to fit in somewhat naturally with Betsy's daily routines, and are sometimes done late or missed because of scheduling issues. Betsy is doing well with this schedule and it will be continued to promote normalization in frequency and time of toilet use.

As Betsy has learned why she is directed to sit on the toilet and concurrently increased her success at toileting, she has begun to communicate a desire to sit for only a short time (15 - 30 seconds) during many staff-directed sits. She has generally been allowed to finish when she signs "finished", unless staining or a previous bowel movement that day indicated an increased probability that she may have a success. There have been instances of Betsy signing "finished", staying seated because of staff direction, and then having a bowel movement. Generally, however, she will voluntarily stay seated when she knows she can have a successful sit and get her reward. Betsy has also begun to have her movements close to the same times daily over long periods of time.

As of March 1987, the recorded incidence of Betsy's bowel movements has dropped significantly over the previous month (Figure 3). In view of her consistent success rate, the staff believe that Betsy is self-initiating more and more without staff present to observe.

CONCLUSIONS

Betsy's success was the result of a multifaceted program adhered to over a period of many months. While autism and severe mental retardation have impeded her ability both socially and intellectually, acquisition of appropriate toileting skills has yielded benefits in self-help, socialization and communication areas. The needs of the developmentally disabled encopretic client may be best addressed with a long-term, hierarchical approach: Betsy first required desensitization to a dirty toilet before she was able to use other toilets at the ISDD and then finally able to use toilets in multiple community settings. Continuity of successful toileting (Dunlap et al., 1984) coupled with self-initiation comprised the most important measures of independence. The toileting plan was part of her entire program, but received top priority because it was absolutely essential that she be trained if she was going to participate in the mainstream of life. Her program now focuses more on independence in other areas. She continues with successful toileting on visits home.

We recognize the great potential drain on staff resources in undertaking such a program, particularly in an institutional setting (Levine & Elliott, 1970). However the debilitating effects of dealing with encopresis offer an equally obtrusive drain. The authors and their colleagues have observed that encopresis and bowel problems in general are very common among people with autism. A further investigation is being conducted to study the origins and common characteristics of these problems. We speculate that because a successful toilet training program depends so heavily on communication and social interaction, people with autism may require specialized training programs built on positive

communication of expectations. Since it's extremely doubtful that remediation of any aspect of the problem becomes easier during adolescence and adulthood, a well-documented program is best undertaken early.

Further research is needed to establish an empirical database regarding special issues involved in toilet training these clients. It is hoped that such research would focus on issues raised here: reinforcement, desensitization, maintenance and generalization, communication and social interaction, and toilet-training in community-based programs.

FOLLOW-UP: BETSY ONE YEAR LATER

Betsy's toileting behaviour reached the targeted level of independence over the months following our final documentation. She has been virtually indistinguishable from her peers who were toilet trained in early childhood. In fact, by the fall of 1987, staff were no longer able to keep accurate data because Betsy was now self-initiating each time and using the bathroom without incident had become the norm. Toileting behaviour was officially removed from her targeted behaviours in September 1987. Bowel movements and wetting off the toilet are now recorded as unusual incidents.

Of the two accidents since November 1986, both have occurred in a sheltered workshop environment which Betsy likely regarded as either unfamiliar or uncomfortable. While she had been working there a few hours a day for several months, she was still encouraged to use the toilet at school prior to leaving for the workshop. Her workshop time was lengthened in January 1988 but she was not familiar with the bathroom there. It should be noted that these incidents took place within three weeks of each other during a time which involved a medication change. Staff reports also indicate that Betsy had diarrhea during this time. After both accidents, Betsy was easily directed and assisted with cleaning herself. To her credit, Betsy has approached familiar staff several times since then and pointed to "toilet" on her communication board while in the workshop.

As of March 1988, Betsy has not smeared a bowel movement in eighteen months (Figure 4). She spends leisure time and works in the community on a daily basis. She is currently targeted for a less restrictive community based group home placement for the summer of 1988. With an effective communication system, improvements in behaviour, and no longer hampered by incontinence, we have every reason to believe she will succeed.

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Table II

Monthly toileting totals. June 1986 — May 1987

	Success	Self-Initiated	Messes	Smearing
June 86	78%	21%	4	2
July	61%	53%	9	5
August	91%	40%	2	1
September	92%	23%	2	1
October	90%	44%	2	2
November	86%	92%	2	0
December	100%	86%	0	0
Jan. 87	100%	59%	0	0
February	100%	88%	0	0
March	100%	75%	0	0
April	100%	83%	0	0
May	100%	100%	0	0

Figure 1

Bowel movements off toilet. October 1984 — February 1987

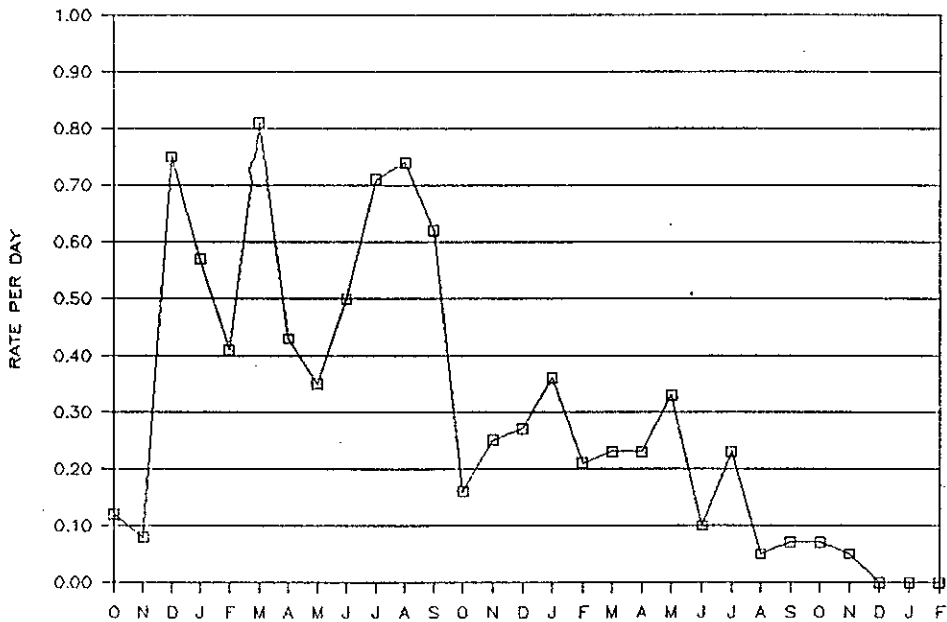


Figure 2

Smearing bowel movement. October 1984 — February 1987
(Incidence not recorded until June 1985)

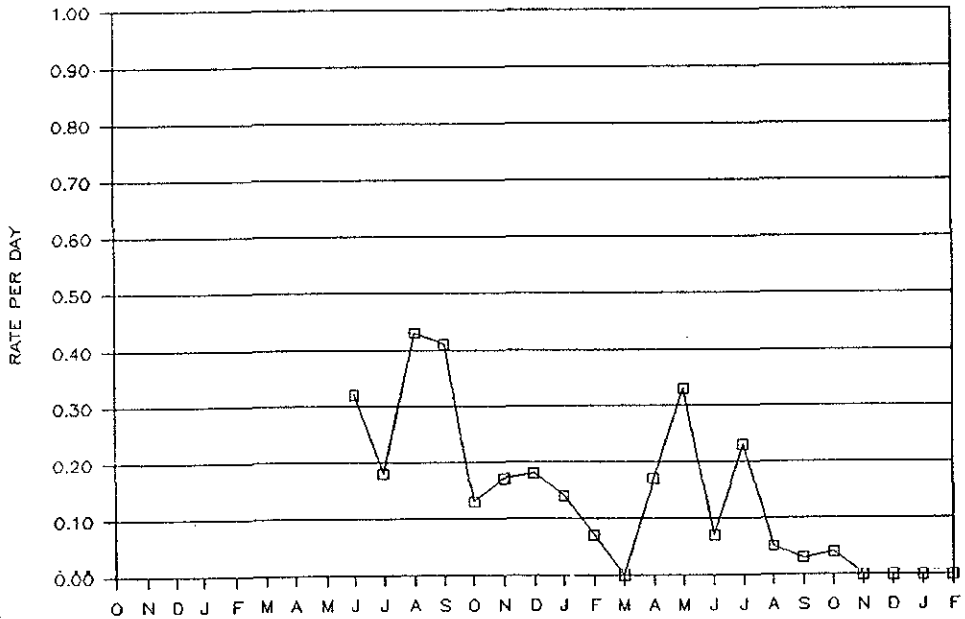


Figure 3

Bowel movements in toilet. October 1984 — February 1987

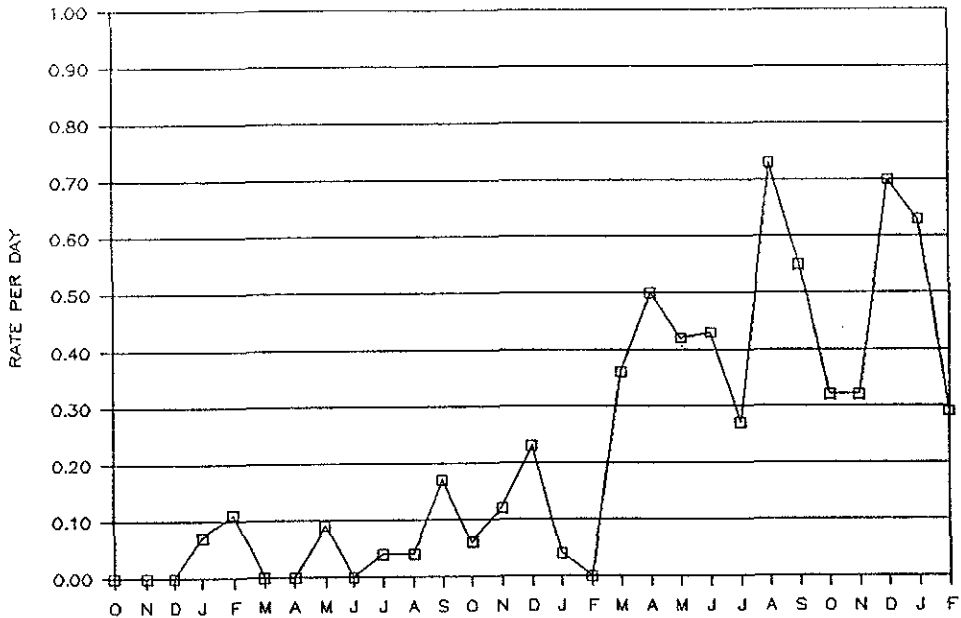
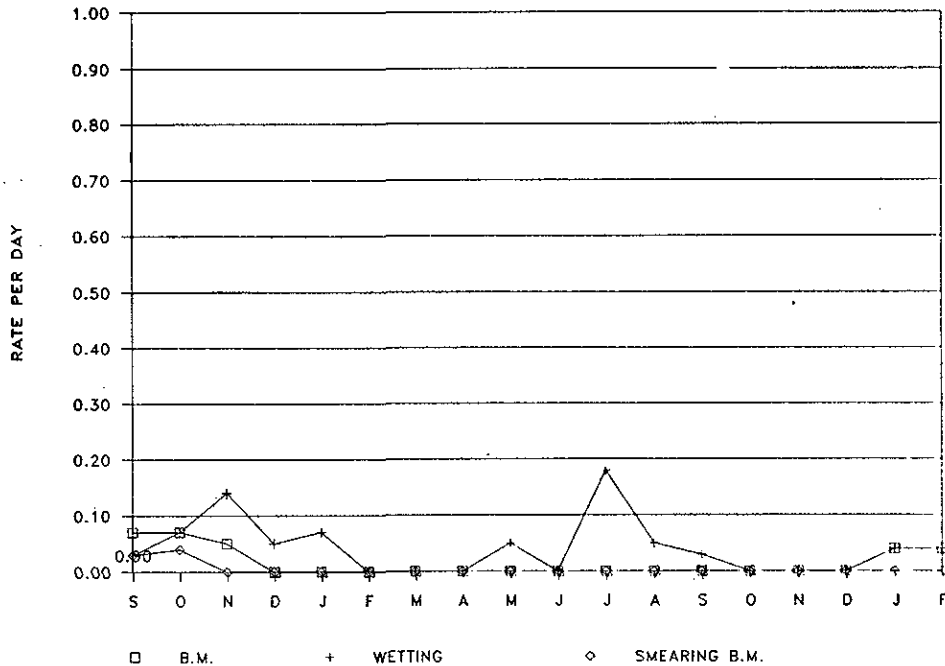


Figure 4
Unsuccessful toileting summary Sep. 1986 – Feb. 1988



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