MANAGEMENT OF GERIATRIC INCONTINENCE IN NURSING HOMES

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A behavioral management system designed to reduce urinary incontinence was evaluated in two nursing homes with a pretest-posttest control group design with repeated measures. The primary components of the system were prompting and contingent social approval/disapproval which required approximately 2.5 minutes per patient per hour to administer. The frequency of correct toileting for experimental subjects increased by approximately 45%. The experimental groups were significantly different from the control groups on both incontinence and correct toileting measures. The results are discussed in view of the management issues inherent in nursing home settings.

DESCRIPTORS: elderly, incontinence, management, nursing homes

Incontinence is a prevalent and serious problem among elderly people who reside in institutions (Maney, 1976). Estimates run as high as 80%, and incontinence contributes to admission to nursing homes and to continued institutionalization (Portnoi, 1981). There have been several effective programs for reducing incontinence, but most have focused on toilet training in children (Azrin & Foxx, 1971; Foxx & Azrin, 1973). Behavioral procedures have also been used successfully with geriatric patients residing in psychiatric hospitals with less dramatic results (Atthowe, 1972; Grosicki, 1968; Sanavio, 1981). Notably lacking in the professional literature is an empirical study directed toward the problem of incontinence in nursing homes that are not "psychiatric" in nature. This is an important absence because geriatric nursing home patients comprise the largest segment of the institutionalized geriatric population with the

U.S. Bureau of the Census reporting 1,303,000 nursing home patients as of 1977 (U.S. Department of Commerce, 1980).

The available articles describing nursing home incontinence programs (DuFault, 1978) are not data based and do not specify clear behavioral goals or report outcome data. In addition, the basic underlying operational procedure depends on a patient prompting procedure whereby a patient is placed on a bedpan at prescribed intervals. This procedure has been criticized by Foxx and Azrin (1973) as fostering undue dependence on the part of the patients. Instead, Foxx and Azrin argue that the goal of an incontinence program should be to elevate patients to the highest functioning level possible. In the case of subjects who are ambulatory, this goal most commonly translates into teaching the subject to self-initiate and execute the entire toileting sequence independently.

Unlike younger populations and even the psychogeriatric populations in which incontinence rehabilitation data have been reported, nursing home patients typically lack the physical skills to toilet independently. Due to pervasive physical deficits, it is clear that the most appropriate goal of an incontinence rehabilitation

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program in a nursing home should be to teach patients to "request" toileting assistance from staff when the need to void exists. Such a program involves not only teaching patients to request assistance, but also teaching nursing home staff to require such behaviors from the patients and to fulfill the patient's request when made.

Neither of these objectives are necessarily easy to accomplish due to the documented general dependence on the part of nursing home patients and general nonresponsiveness on the part of nursing home aides. The phenomenon of nursing home staff performing daily life functions for patients (i.e., grooming, feeding, dressing) instead of inducing patients to be independent has been described by Barton, Baltes, and Orzech (1980), MacDonald and Butler (1974), and Zarit (1980). The most typical reasons cited for such 'overcare' have been efficiency and lack of staff knowledge, since it is often faster to perform a function for a patient than it is to motivate and wait for a patient to complete the task independently.

This paper describes a simple management system designed to increase appropriate toileting behavior in nursing home residents.

METHOD

Setting

This study was conducted in two separate nursing homes in a Middle Tennessee city with an approximate population of 38,000. Nursing Home A was a 64-bed intermediate care facility staffed with 1 RN, 4 LPN's, and 21 nursing aides. During this study the average aide to patient ratio was 1:8 on day shift (7:00 a.m.-3:00 p.m.) and 1:16 on evening shift (3:00 p.m.-11:00 p.m.). Nursing Home B was a 120-bed combined skilled and intermediate care facility staffed by 3 RN's, 10 LPN's, and 33 nursing aides. Aide to patient ratio was 1:6 on days and 1:9 on evenings. Nursing aides in both facilities were minimum wage workers with an annual job turnover rate of 89% and 100%, respectively.

Patients

All patients ($N = 14$) on one hall of Nursing Home A who were identified by staff to be incontinent were chosen to participate. During baseline observations one patient died, three exhibited no incidents of incontinence, and one was refused medical permission for participation in the study. The remaining nine patients were randomly divided in experimental ($N = 5$) and control ($N = 4$) groups. The eight females and one male ranged in age from 67 to 92 yr (mean = 83 yr).

Nursing Home B maintained a monthly updated computerized information system which identified incontinent patients. Twelve non-comatose incontinent patients were identified from the computer information forms and randomly assigned to experimental ($N = 6$) and control ($N = 6$) groups. Medical permission for participation in the study was granted on all patients and informal observations revealed that all patients exhibited incontinence. The seven females and five males ranged in age from 48 to 96 yr (mean = 81 yr).

No patients were deleted from the study due to physical limitations. Of the combined patient pool ($N = 21$), none of the patients was independently ambulatory, although one could walk if assisted to rise from her chair. Only two of the patients were capable of assisting even minimally in their physical transfer from a chair to the commode. Thus, none of the patients was physically capable of independent toileting. All patients were suffering from age-related organic disorders, with 95% having a diagnosis of either organic brain syndrome or senile dementia.

Experimental Design Procedure

A pretest-posttest control group design with repeated measures (Campbell & Stanley, 1963) was used in the two nursing homes to evaluate the basic management program for reduction of incontinence.

Baseline. Fourteen aides in Nursing Home A and four aides in Nursing Home B implemented

baseline and treatment procedures throughout the study. During the 5-day baseline, aides felt the patient's clothing and body every hour between 7:00 a.m. and 7:00 p.m. and recorded wetness or dryness and if the patient requested toileting assistance. Aides were instructed to refrain from discussion of toileting with the patients during these checks, but to assist in toileting if requested. Baseline procedures were continued for the control groups throughout the study with the frequency of recording reduced to approximately 3 days per week subsequent to intervention on the experimental groups.

Intervention. During intervention, the aides checked each patient every hour for wetness or dryness. They then prompted the patient and toileted the patient only if the patient responded affirmatively to the prompt. *Social approval* was delivered for dry checks and for requests for toileting assistance. The operational definition of "requests for toileting assistance" includes both affirmative responses to prompts and independent requests for toileting assistance. *Social disapproval* was delivered for wet checks.

Response Definitions

Check. Feel the patient's clothing and body to determine if they are wet or dry and record. (For experimental group only—Ask the patient if they are wet or dry and provide feedback on their accuracy.)

Prompt. Say something to the patient so that the patient is given the best opportunity to request assistance, e.g., "Mrs. —, do you need to go to the bathroom?"

Social approval. Interact with the patient in such a way that he or she enjoys the attention. This usually means praising the patient in an adult manner and gently touching the patient, e.g., "Good, you're dry. Isn't that more comfortable? That makes my job easier and I can have more time to talk to you." This pleasant social interaction should last at least 2-3 min. After you deliver your prompt, stay and talk about the patient's family, the weather, food, etc.

Social disapproval. Interact with the patient

in a way that shows you are disappointed in him or her. This disapproval should be made clear in an adult manner; do not be abusive and make the overall reaction time short, e.g., "I don't understand why you wet on yourself and didn't ask for help. I come around every hour." Clean the patient but hold no further conversation and render no further service at that time.

Reliability

Interobserver agreement on the patient's wetness or dryness was obtained by having the aide and a trainer (one of the authors) independently but concurrently check the patient and record. If an aide recorded data without first feeling the patient, it was defined as a disagreement. Observers also independently recorded patient voiding subsequent to requesting toileting assistance. Interobserver agreement was recorded for 17% of baseline patient contacts and 10% of patient contacts during intervention and calculated using the formula $A = A/D \times 100$. Interobserver agreement averaged 99.8% over baseline and intervention periods in both nursing homes.

In addition to interobserver agreement on patient responses, process reliability of the accuracy of aides' treatment implementation was assessed for 12% of patient contacts during baseline and 10% during intervention. Disagreement was defined as an aide either failing to perform a portion of the routine or performing in a manner inconsistent with instructions concerning patient interaction (see *Response Definitions*). Aides were given immediate feedback on incorrect procedural implementation. Reliability was calculated using the formula $A = A/D \times 100$. Aides correctly implemented the procedure during 97.2% of their patient contacts for both baseline and intervention.

RESULTS

The percentage of checks that all experimental patients were judged wet decreased from an average of 29.7% during baseline to 15% during treatment conditions. The average num-

ber of requests for toileting assistance for experimental patients changed from a baseline average of .31 per day per patient to a treatment average of 2.0. Control group patients did not show such drastic changes on either measure: baseline average wet = 25.1%, treatment period average wet = 25.5%; baseline requests = .30 per day per patient, treatment period requests = .23 per day per patient.

Two 2×2 analyses of variance were conducted on the group measures of percentage of checks wet and two 2×2 analyses of variance were conducted on the group measure of number of requests for toileting assistance. One analysis for each measure was conducted on the baseline data only with the experimental and control patients being one factor and Nursing Home A or B being the second factor. The second analysis was done for each measure in the same manner for the intervention period only.

Most notably, in the pretreatment comparisons there was no significant group effect on either measure indicating that the experimental and control groups within both institutions were comparable. The posttreatment analysis yielded a significant group effect on both measures documenting that the experimental group showed significantly lower incontinence levels ($F(1, 17) = 4.57, p < .04$) and significantly more levels of requests ($F(1, 17) = 14.33, p < .02$) than the control group. In addition, there was no significant institutional effect demonstrating that the group differences were similar in both institutions.

Figure 1 summarizes the interrelationship between the primary measures (wet checks and patient requests for assistance) by illustrating the daily group percentage of correct toileting behaviors during baseline and intervention periods in both nursing facilities. Percent correct toileting was calculated by dividing the number of times a patient voided in a bedpan/urinal/toilet (this was always done after a patient request) by the number of total voidings (wet checks + appropriate voidings). There was a

+43% change from baseline (mean = 18%) to the intervention period (mean = 16%) for the experimental groups in Nursing Home A and a +41% change in Nursing Home B (mean baseline = 1%; mean intervention = 42%). The control group did not show dramatic change in either case with a -11% change for Nursing Home A and a -3% change for Nursing Home B.

DISCUSSION

The application of the basic management procedures significantly reduced the frequency of incontinence and significantly increased the percentage of appropriate toileting for an experimental group in two separate nursing homes. Improvements in toileting were obtained rapidly and maintained throughout a 21-day experimental condition. The fact that dramatic change in toileting behavior occurred the first day of the basic management condition (see Figure 1) supports the contention that nursing home incontinence is more a staff-patient management problem than a patient relearning problem. A less dramatic initial change followed by a more gradual improvement would have been expected if patients had to relearn correct toileting behavior.

The absence of subject selection criteria, the randomization of patients between experimental and control groups, and the replication of the basic management procedure effects in two separate nursing facilities offer ample support for both the internal and external validity of the results reported in this paper. The failure of the control group patients to improve, despite hourly staff contacts for the purpose of measurement, documents the importance of the social reinforcement/disapproval intervention procedures that were present in the experimental but not the control conditions. Obviously, assuring that staff-patient contacts occur on an hourly basis was one of the key and necessary components of the successful basic management program. However, if such contact was the most

Fig. 1. Percentage of correct toileting for the experimental and control groups in both nursing facilities.

critical and sufficient program component, then improvements in the control group data would also have been apparent. It should be noted that staff-patient contacts were scheduled on an hourly basis to be certain that the basic management program provided an enriched schedule of social reinforcers for patients compared with the typical nursing home routine. During the relatively infrequent contacts in which social disapproval was delivered, steps were taken to ensure that it was not abusive in nature.

A multiple baseline intervention across subjects within each nursing facility was contemplated but not implemented due to an untimely loss of control patients immediately after the intervention period. A total of five control group patients were lost within 2 wk of the intervention termination. Despite this loss it should be noted that the randomized subject design used in this evaluation offers excellent controls for internal validity threats.

Independent observations on 10 different occasions were made as to the amount of time staff spent in completing the basic management procedures. The average time spent was approximately 2.5 min per patient. With time spent moving between patients added, the average intervention time for six patients was approximately 20 min per hour. These minimal time requirements indicate that the basic management procedure could be integrated into the staff work load that characterizes most nursing facilities. In fact, it was the existing written policy of one of the two nursing facilities that staff should be in contact with patients on an hourly basis (every 2 hr for the other).

Unfortunately, the simple logic of this time argument will often break down, given the absenteeism and staff turnover problems that characterize nursing homes. The nursing homes in this study have annual staff turnover rates of approximately 100% and employee termination frequently occurs when staff fail to show up for work, causing frequent understaffing. When understaffing occurs, the time demands of basic nursing functions such as feeding, dressing, and

grooming become highly stressful because the staff present are assigned more patients than normal. These time stressors often mean the staff will not check patients each hour even though the 2.5 min per patient per hour basic management time requirement is clearly not excessive. In fact, it could be argued that basic management reduces some work load requirements such as changing clothes and bed clothing when patients are incontinent. Unfortunately, these time savings are not particularly reinforcing to staff since clothes changing can be done at the staff's discretion and does not have to occur on an hourly basis or even when the patient is wet.

The combination of these factors meant that, during the course of this evaluation, staff consistency was maintained only with strong supervisory pressure. The termination of this evaluation led to a reduction in supervisory pressure and in one of the two institutions, the basic management procedure was performed only sporadically thereafter. The second institution assigned a full-time worker to the program, hence reducing the need for strong supervision of general nursing home staff.

Given the physical deficits illustrated by nursing home patients which largely preclude independent toileting, it is clear that if the basic management procedures are completely terminated, continence cannot be maintained. This study has demonstrated that incontinence in nursing homes is largely a patient management problem which can be remedied by a time-efficient staff management procedure. This finding is apparently unique, given the fact that a majority of the professional literature on incontinence in nursing homes attributes incontinence to psychological and physical problems of the patients. If the staff management procedure described in this paper can be maintained, then incontinence in nursing homes should be reduced by a projected 40%. The application of more intense, individualized, and time-consuming rehabilitation programs can probably reduce this incontinence even further. However, incontinence gains can only be made and maintained

if systematic staff-patient contacts for the purpose of assisting patients in toileting can occur.

Organizational behavior management procedures that will facilitate such management goals must be implemented if incontinence is to be affected to the degree documented in this evaluation over longer time periods. This study has demonstrated another technique whereby nursing aides may be effective assessment and intervention agents in a manner that is not cost or time prohibitive for nursing homes (see Risley, 1979; Schnelle & Traughber, in press; Traughber, Erwin, Schnelle, & Risley, in press).

REFERENCE NOTE

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