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Naturalistic Inquiry and Treatment of Coprophagia in One Individual

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Coprophagia refers to the deliberate ingestion of one's fecal matter. This brief report details the naturalistic inquiry, assessment, and treatment of coprophagia in an adult with developmental disabilities and autism. An assessment was completed which identified self-stimulation as the function of the behavior. The intervention consisted of providing highly spiced, flavorful foods with meals and snacks for the person. Frequency of coprophagia decreased, but by a variable amount, for the first 6 months following initiation of the intervention, and then reduced to zero instances for a period of 26 months.

KEY WORDS: coprophagia; functional assessment; positive behavior support; autism.

As with all persons, individuals with developmental disabilities frequently present behaviors that are socially unacceptable. In some instances, these unacceptable behaviors are tolerated and, with proper support, do not put community access in jeopardy. Alternatively, some problem behaviors, such as coprophagia (the deliberate ingestion of one's fecal matter) create significant barriers to inclusion. This problem is understandably rare, and published reports of incidence are unavailable. Coprophagia has been noted in populations of persons with developmental disabilities and/or cognitive deficits (Bugle and Rubin, 1993); the paucity of controlled studies on intervention strategies to reduce or eliminate this problem behavior is

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noteworthy. One study addressed coprophagia among persons with developmental disabilities successfully using overcorrection (oral hygiene practice) as a treatment (Foxx and Martin, 1975) That intervention practice is no longer permitted in many places due to human rights awareness. Indeed, there are more options in behavior intervention in current times. Most intervention approaches have involved persons with chronic mental illness (Chaturvedi, 1988; McGee and Gutheil, 1989; Wise and Goldberg, 1995; Zeitlin and Polivy, 1995). Examples of interventions in this population include use of psychotropic medications (Nicholls and Ananthanarayanan, 1998; Stewart, 1995), counseling or supportive therapy interventions (McGee and Gutheil, 1989; Wise and Goldberg, 1995), behavioral interventions (Zeitlin and Polivy, 1995), and use of dietary supplements (thiamine) (Bugle and Rubin, 1993; Ghaziuddin and McDonald, 1985). It is clear that a family member or professional searching for advice for how to treat coprophagia will find little assistance in the literature base, though there is abundant literature on treatment of pica (deliberate ingestion of non-edible objects). However, the nature of the inedible object consumed in coprophagia, as well as published studies suggesting different causes for coprophagia (e.g., Bugle and Rubin, 1993); demand the publication of studies specifically investigating treatment of this rare phenomenon.

This report describes an intervention used for coprophagia for a person with developmental disabilities. Experimental procedures to establish internal validity were not utilized due to constraints of the natural setting, family, and provider wishes, level of public scrutiny regarding this person, and the health risks posed by this type of problem behavior, but the paucity of published research involving this population and utilization of functional assessment procedures make contributions of this naturalistic study significant.

METHOD

Participant

The participant in this study was an adult male in his 40s diagnosed as having profound mental retardation and autism. He had been living in a residential setting for adults with developmental disabilities in a Pacific Northwest community for approximately 1 year; he had lived in an institutional setting previously. He lived with three other housemates and was supported at all times by paid caregivers. He received comprehensive support from care providers in all life areas identified in the 1992 AAMR definition of mental retardation (Luckasson *et al.*, 1992). Data and reports from

the institution in which he previously lived document that he had engaged in coprophagia over the course of his life with no periods of time in which the behavior was not reported. A variety of interventions had been pursued across many years with no reported success, including use of punitive and restrictive interventions. He exhibited other problem behaviors including pinching, scratching, and slapping self and others at low rates and intensities throughout the course of this study. Each of these categories of behavior occurred at average frequencies between 0 and 1 instance per day.

Procedures

The authors, with the team of direct care staff and other interested parties, completed a functional assessment interview utilizing the format and procedures described by O'Neill *et al.* (1997). The functional assessment interview was supported by observational collection of behavioral data by the authors of this study and existing observational data of problem behaviors. Visual inspection of the data graphs (Kazdin, 1982) suggested that coprophagia was not functionally related to other types of problem behavior, as these behaviors did not appear to co-vary or co-occur. Results of the functional assessment interview indicated that the behavior was self-reinforcing (self-stimulating). From that point, the team brainstormed what might have been stimulating about the behavior for the individual. They agreed to begin with a hypothesis that the individual smelled and tasted his fecal matter for self-stimulation. In other words, he found the smell and taste intrinsically reinforcing, perhaps due to sensory differences resulting from his autism, much as other people might enjoy the smell and taste of chocolate.

As a competing or replacement behavior (O'Neill *et al.*, 1997), the team selected ingestion of highly-spiced, flavorful foods. As an intervention, care-providing staff assured that highly-spiced, flavorful food was offered to the individual with each meal and was freely accessible as snacks on a nearly continuous basis in the home. Examples of this included highly spiced snack foods such as hot pepper-flavored chips. Meals included foods such as spicy curry dishes. When non-spicy foods were served as a main course, additions were made for the individual to assure that he had access to spicy food. Staff reported that he seemed to enjoy the more spicy meals, but the reader should note that he still had access to and ate non-spicy food with no weight gain reported. The second author conducted numerous procedural reliability assessments, and noted 100% implementation during visits to the home from the beginning of the intervention until the end of data collection presented in this paper.

Data Collection

Data were collected by paid caregivers based on their observations of the individual. Coprophagia was recorded on observational data sheets whenever fecal matter was noted in or around the mouth area. Across his life, care providers have reported that he made no effort to hide episodes of coprophagia. Low frequency of the behavior and the longitudinal nature of the intervention prevented the authors from conducting formal inter-observer reliability procedures. However, a 100% correspondence of coprophagia was noted among observational data, the narrative in the staff log (a legal record), and incident reports written by staff.

RESULTS

Figure 1 graphically depicts rates of coprophagia prior to and subsequent to initiation of the food intervention. Data are presented as total noted instances of coprophagia per month. No instances of coprophagia were noted from August of 2001 until the end of research data collection in October of 2003. It is important to note that the behavior continued at a variable, reduced rate for 6 months after initiation of the food intervention, before dropping to zero instances for the subsequent 26 months. The food intervention began mid-month in January of 2001, so the data point for January includes two episodes of coprophagia prior to the initiation of the food intervention, and one episode after the beginning of the food intervention.

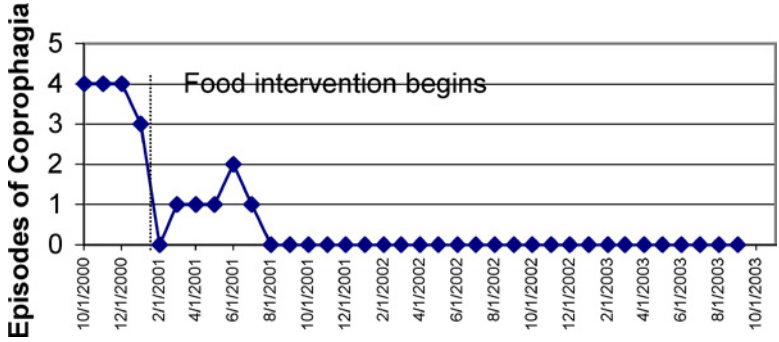

Fig. 1. Total episodes of coprophagia per month.

DISCUSSION

Following the introduction of the food intervention, frequency of episodes of coprophagia dramatically decreased for 6 months. Subsequently, for 26 consecutive months, instances of coprophagia were eliminated. The behavior had not recurred as of the date of preparation of this manuscript. It must be noted that the intervention was linked to the hypothesized function of this rare and disturbing behavior. The authors recommend that any intervention for coprophagia begin with a functional assessment, and suggest that even with a behavior that is intrinsically reinforcing, a fine-grained hypothesis can lead to interventions that are linked precisely to the determined functions of behavior. The first complete month after initiation of the intervention there were no instances of coprophagia. However, the fact that the behavior continued, though at a greatly reduced rate, for 6 months following initiation of the intervention does weaken the inference that can be drawn regarding the effect of the intervention, as does the lack of experimental control. Persistence of the behavior may have occurred due to the fact that after decades of the behavior, it had become a habit.

Due to concerns of the nature of the behavior, the applied setting, wishes of family and providers, and the exploratory nature of this work, experimental procedures to confirm the internal validity of this study were not conducted (Barlow and Hersen, 1984; Kazdin, 1982). A reversal design would have eliminated confounds in the study, but withholding a treatment that had a significant impact on this previously intractable behavior would have raised ethical concerns. Similar concerns prevented the use of a multiple baseline design. Concerns regarding potential contrast effects were significant to the care providing organization and the family of the individual. Outside scrutiny of this person's progress during a deinstitutionalization process prevented these experimental designs as well. During the course of this study, this individual lived in the same residential site, did not receive any psychotropic medications, and had no significant health life changes. The only significant change was the procedure described in this study. The intervention used was low cost and low effort for staff, which undoubtedly contributed to the consistent implementation and success of this intervention.

The epidemiology of coprophagia in persons with developmental disabilities is unknown, but most experienced professionals and paraprofessionals have either worked with or know of people with this disorder. Health risks of this behavior are obvious and the effects this behavior has on the individual's quality of life are also self-evident. Because this study describes the result of only one individual does not mean that it

does not have significant value (Carr *et al*., 1999; Wolf, 1978). Currently, publications of a non-intrusive procedure that effectively treat coprophagia in this population do not exist. The assessment and procedures detailed in this study present a treatment that could benefit other individuals with coprophagia.

Although frequency of coprophagia was reduced following introduction of the food intervention and the reduction was maintained over time, coprophagia occurring in other people may be occurring for an entirely different set of reasons. Therefore, any person who is presenting coprophagia should also have a medical evaluation ruling out mineral deficiencies or other physiological problems, such as intestinal blockage.

Ongoing evaluation of changes in behavior is important, and given the prior history of coprophagia, the long duration of low or zero rates of coprophagia is impressive, though it does not experimentally confirm the effectiveness of this intervention. In this clinical intervention, coprophagia was eliminated subsequent to a process of developing a function assessment of the behavior, and selecting a competing or replacement behavior that matched the hypothesized function of coprophagia.

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