FUNCTIONAL ASSESSMENT AND TREATMENT OF LIFE-THREATENING
DRUG INGESTION IN A DUALY DIAGNOSED YOUTH

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Few data exist on operant mechanisms associated with drug overdose. In this investigation, a functional analysis indicated that life-threatening drug ingestion exhibited by a dually diagnosed youth was maintained by negative reinforcement. An operant intervention, derived from behavioral assessment data, reduced drug ingestion to near-zero levels.

DESCRIPTORS: autistic youth, behavioral assessment, drug overdoses, functional analysis

The role of operant mechanisms on drug overdosing with nonaddictive medications has not been well researched. In this investigation, a functional analysis (Iwata, Dorsey, Slifer, Bauman, & Richman, 1982) was conducted to evaluate three operant hypotheses for the repeated occurrence of life-threatening, covert pill ingestion exhibited by an adolescent male with dual diagnoses. The results of the functional analysis were then used in conjunction with another behavioral assessment strategy, empirically derived consequences (Fisher, Piazza, & Lachman, *in press*), to develop a behavioral treatment package for this problem. The case was noteworthy because the functional analysis suggested that the behavior was maintained by negative reinforcement and treatment integrity was complicated because (a) the client could travel independently and buy or steal pills, (b) pill ingestion was covert and occurred when the client was unsupervised, and (c) his caregiver had mild retardation.

METHOD: Lyle, a 19-year-old male with mild retardation and autism, received inpatient treatment for covert, recurrent ingestion of potentially lethal quantities of oral medications including Mellaril®, Valium®, aspirin, Tylenol®, muscle relaxants, and antihistamines. This problem had resulted in six visits to the hospital emergency room (ER). Preventive measures (i.e., eliminating pills from home and school) were unsuccessful, because he would search for hidden pills, leave home or school and shoplift pills, and break into locked medicine cabinets. Sessions were conducted in a classroom and an adjoining medication treatment room baited with placebos. Both rooms had one-way mirrors that allowed unobtrusive observation. Pill ingestion was defined as the placement of a pill in the mouth. Reliability data were collected for 47% of sessions, and exact agreement coefficients averaged 99% (range, 53% to 100%).

Three operant hypotheses for pill ingestion were generated based on chart records of the antecedents to and consequences of drug ingestion episodes. We hypothesized that pill ingestion was maintained by (a) attention received from medical personnel, (b) attention received from the client's mother, or (c) escape from work activities. No pattern of antecedents was identified, but these three types of consequences occurred in over 75% of the episodes. The hypotheses were tested using a functional assessment in which the client was assigned school and vocational work and was then left unsupervised in the hospital classroom (his typical daytime setting). Four pill bottles, differing only in label color, were in a pill box in the mock treatment room. Lyle was informed of the following consequences associated with pill ingestion: (a) red label, 30 min of medical attention (similar to previous ER visits); (b) orange label, 30 min of parental attention (his mother scolded him); (c) blue label, Lyle was allowed to escape from the ongoing task and lie down for 30 min; and (d) yellow label, a control condition with no consequence for pill ingestion.

Because the results suggested that pill ingestion was maintained by escape from work (see the figure), a treatment package was developed in which Lyle could earn preferred (nonwork) activities for completing scheduled work activities or "turning in" pills he found, and he was required to complete his least preferred work task (shoe polishing) if he engaged in pill ingestion. Shoe polishing was selected using the method of empirically derived consequences: Eight potential work tasks were presented to Lyle, two at a time, in a forced-choice format. The work task chosen least often (shoe polishing) was selected as the punisher. Lyle was informed of the consequences in effect for each phase.

Lyle approximated his preadmission schedule in the hospital by spending school hours in the hospital classroom and the remainder of the day in the living area or the community. Fading techniques were used to generalize the treatment across the day in the hospital and to the natural environment, and to make implementation easier for Lyle's mother. Generalization programming involved a series of steps including baiting other hospital settings (e.g., the living area, bathroom, hallways, stairwells), then taking Lyle outside the hospital (e.g., home, subway, grocery stores, drugstores) for increasing periods of time with decreasing amounts of supervision (i.e., from a therapist in the same room to unsupervised trips). The method of detecting and providing consequences for pill ingestion was also faded from direct observation through one-way mirrors, to pill containers that left a blue residue on Lyle's hands, and finally to tox-screens completed during weekly outpatient visits.

RESULTS AND DISCUSSION: Lyle sampled pills from a variety of pill containers during the first several functional analysis sessions, as depicted in the top panel of the figure. Thereafter, he consumed pills (in rapid succession) only from the bottle associated with task termination, suggesting that the behavior was maintained by negative reinforcement. As depicted in the bottom panel of the figure, pill ingestion was high during baseline ($M = 11.05$ per minute), rapidly dropped to near-zero levels during treatment ($M = 0.01$ per minute), increased with treatment withdrawal ($M = 3.95$ per minute), and decreased again when treatment was reintroduced ($M = 0.07$ per minute). During generalization, pill ingestion remained at zero. For 5 months after discharge, 2 of 18 (11%) tox-screens were positive, compared with six of seven (85%) prior to

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admission. The tox-screens were important because of the covert nature of the behavior and because they allowed the consistent implementation of treatment consequences that could not be applied following ingestion of a lethal dose of medication. Lyle had no ER visits during follow-up, indicating that, although the behavior was not completely eliminated, severity significantly decreased. This case illustrates the usefulness of (a) functional analysis to assess covert behavior in persons with dual diagnoses, (b) combining behavioral assessment strategies to enhance treatment effectiveness, and (c) fading procedures to promote generalization of treatment effects to the natural environment and to simplify monitoring procedures for care providers with developmental disabilities. The generality of these findings remains to be established, because drug ingestion may have multiple determinants, some of which were not assessed in the functional analysis and could not be ethically manipulated (e.g., physiological effects of specific medications).

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