

*FUNCTIONAL ANALYSIS OF EPISODIC
SELF-INJURY CORRELATED WITH
RECURRENT OTITIS MEDIA*

MARK F. O'REILLY

UNIVERSITY COLLEGE, DUBLIN

A functional analysis examined the consequences that maintained episodic self-injury and the relationship between those consequences and otitis media for a child with moderate developmental disabilities. Results indicated that self-injury occurred only during periods of otitis media. Otitis media may have served as an establishing operation related to escape from ambient noise.

DESCRIPTORS: episodic self-injury, functional analysis, establishing operations, biological setting events, otitis media

Occasionally, functional analyses fail to identify maintaining contingencies because aberrant behavior is episodic in nature (O'Reilly, 1996). Such episodic aberrant behavior may be influenced by extraneous variables, such as establishing operations, that are not directly manipulated in the analogue environment. Recent research has demonstrated that biological conditions such as sleep deprivation and allergy symptoms may function as establishing operations and may influence performance under controlled analogue conditions (Kennedy & Meyer, 1996; O'Reilly, 1995). Other biological conditions, such as otitis media, have also been hypothesized to influence the occurrence of aberrant behavior (Carr & Smith, 1995; Cataldo & Harris, 1982). The purpose of this study was to examine the potential of analogue techniques to assess the function of episodic self-injurious behavior (SIB) and the relationship between the presence of self-injury and otitis media.

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All correspondence can be sent to Mark O'Reilly, Intellectual Disability Research and Training Unit, Department of Psychology, University College Dublin, Belfield, Dublin 4, Ireland (E-mail: moreilly@macolla.mh.ucd.ie).

METHOD

Participant, Setting, and Target Behavior

Mary, a 26-month-old girl with moderate developmental disabilities, participated in the study. She had also been diagnosed with Williams syndrome, a condition that is associated with hypersensitivity to sound and recurrent otitis media. Mary was placed on antibiotic regimens whenever otitis media was diagnosed during the study. Her mother was trained to implement the analogue assessment conditions at home while the experimenter (author) and a graduate student in psychology (reliability observer) collected observational data. Mary's SIB consisted of back banging and ear poking. These behaviors typically occurred simultaneously. Structured interviews with Mary's mother and general medical practitioner indicated that SIB occurred at high frequencies for approximately 3 to 10 days per month (usually in continuous bouts of 2 to 3 days). Hypotheses derived from the interviews regarding the occurrence of self-injury included (a) social attention during episodes of otitis media, (b) escape from demands during episodes of otitis media, (c) sensory reduction during episodes of otitis media, and (d) sensory stimulation during episodes of otitis media. (Complete definitions of target be-

haviors and interview protocol are available from the author.)

Procedures and Design

Six assessment conditions were presented in a multielement format to test the hypotheses. The assessment was conducted over a 2-month period to obtain a sufficient number of days (7 days total) to conduct the functional analysis when otitis media was diagnosed. When Mary exhibited self-injury, her mother was instructed to bring her to the general practitioner for a medical examination. If otitis media was diagnosed, then a functional analysis was conducted that day. Functional analysis probes were also conducted on 3 days when otitis media was not present to examine performance under analogue assessment in the absence of this medical condition. Mary received a medical examination for the presence of otitis media on each day that the functional analysis was conducted. Analogue sessions were 10 min long, with a 5-min break between sessions. Self-injury was recorded using a 10-s partial-interval procedure. Mean agreement on occurrence of self-injury, assessed during 26% of sessions, was 94%. With the exception of the demand condition, all assessments were conducted in the family kitchen with Mary seated in a high chair or reclined in a rock-a-bye chair.

Social attention. Mary's mother was present in the room with Mary while the experimenter unobtrusively recorded self-injury outside the room (observations were conducted in this manner throughout the study). Various toys were available but no particular tasks were provided. The mother verbally interacted with Mary for approximately 10 s contingent on the occurrence of self-injury.

Escape from demands. The escape condition was conducted on a mat in the living room. The mother physically assisted Mary through a series of physiotherapy routines

(e.g., sitting to standing, standing independently). Mary was verbally encouraged throughout the routine and praised for correct performance. Instruction was discontinued for a minimum of 10 s when self-injury occurred and was immediately reinstated following this delay or when self-injury stopped.

Alone. Mary was placed alone in the room with no toys. This condition was used to test whether self-injury served a self-stimulatory function.

Radio on. This condition mirrored the alone condition with the exception that a radio was played at high volume while Mary was alone in the room. Radio on was used to test whether self-injury served a sensory reduction function.

Escape high sensory. This condition was included in the final phase of the functional analysis based on the findings of the earlier phases of the assessment. The escape-high-sensory condition differed from the radio-on condition in that the radio (played at same volume as in the radio-on condition) was turned off contingent on self-injury for 10 s or until self-injury stopped.

Play. The play condition mirrored the attention condition, with the exception that the mother maintained a closer proximity and played with Mary while verbally interacting with her approximately every 5 s.

RESULTS AND DISCUSSION

Figure 1 shows that functional analysis probes in the absence of otitis media yielded no self-injury (Phases 1, 3, and 5). Phase 2 (with otitis media) yielded undifferentiated results. Low responding during the alone condition in Phase 2 (range, 0% to 8%) suggested that self-injury might be maintained by escape from ambient noises. Phase 4 (with otitis media) consisted of an extended assessment of the radio-on condition that yielded persistent self-injury ($M = 34.5\%$;

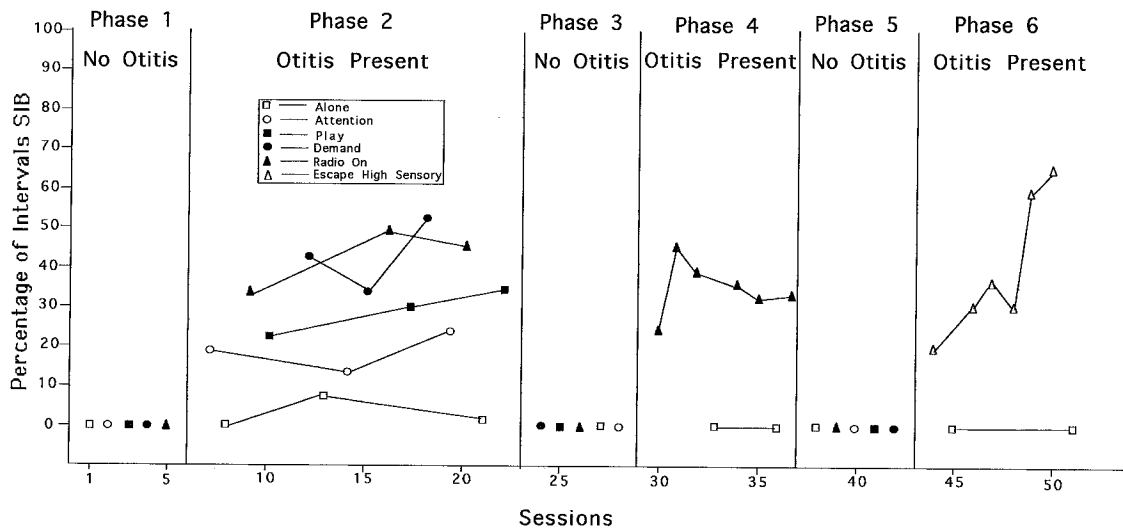


Figure 1. Percentage of intervals of self-injury under alone, attention, play, demand, and radio-on conditions in the absence of otitis media (Phases 1, 3, and 5); under alone, attention, play, demand, and radio-on conditions with otitis media (Phase 2); under alone and radio-on conditions with otitis media (Phase 4); and under alone and escape-high-sensory conditions with otitis media (Phase 6).

range, 24% to 44%). This confirmed that the behavior occurred at high rates when loud noise was introduced to the environment. A further assessment condition was included in the final phase of the analogue analysis with otitis media and demonstrated that self-injury also may have served a sensory escape function ($M = 36.5\%$; range, 16% to 62%). Conclusions regarding a sensory escape function are tentative because this condition was not examined when otitis media was absent. In addition, failure to replicate the social attention, escape from demand, and play conditions in the presence of otitis media limits the conclusions that can be drawn regarding the maintaining contingencies.

These limitations notwithstanding, this study extends the use of analogue analysis techniques to the functional assessment of episodic self-injury. The study also demonstrated a conditional functional relationship between the presence of otitis media and self-injury. Thus, otitis media may have served as an establishing operation or, as

termed by Carr and Smith (1995), a biological setting event related to escape from ambient noises.

REFERENCES

- Carr, E. G., & Smith, C. E. (1995). Biological setting events for self-injury. *Mental Retardation and Developmental Disabilities Research Reviews*, 1, 94-98.
- Cataldo, M. F., & Harris, J. (1982). The biological basis of self-injury in the mentally retarded. *Analysis and Intervention in Developmental Disabilities*, 7, 21-39.
- Kennedy, C. H., & Meyer, K. A. (1996). Sleep deprivation, allergy symptoms, and negatively reinforced problem behavior. *Journal of Applied Behavior Analysis*, 29, 133-135.
- O'Reilly, M. F. (1995). Functional analysis and treatment of escape-maintained aggression correlated with sleep deprivation. *Journal of Applied Behavior Analysis*, 28, 225-226.
- O'Reilly, M. F. (1996). Assessment and treatment of episodic self-injury: A case study. *Research in Developmental Disabilities*, 17, 349-361.

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