The effect of napping on the function of problem behavior for a child diagnosed with an acquired brain injury

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INTRODUCTION

• Despite being recognized as a critical feature of appropriate development, researchers show sleep disorders are quite common amongst youth.
• Poor sleep relates to increased psychopathology, such as mood disorders and disruptive behavior disorders.
• Youth with acquired brain injuries are more likely to experience sleep disruption that interferes with everyday life and also more likely to engage in problem behavior than their typically developing peers.
• The purpose of the current study was to evaluate the effect of fatigue on behavioral assessment and treatment results for one child with an acquired brain injury.

PURPOSE

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RESULTS

• Throughout the study, Patricia slept for an average of 9.7 hrs each night. Her naps lasted an average of 50.4 min (range, 45 – 64 min).
• Patricia’s FA showed both positive (i.e., attention [M = 1.46 rpm], tangible [M = 0.97 rpm]) and negative (i.e., escape from task demands [M = 1.6 rpm]) reinforcement maintained problem behavior before naps.
• In contrast, Patricia’s after-nap FA revealed only attention reinforced problem behavior (M = 1.19 rpm; range, 0.2 – 3.6 rpm). Problem behavior inconsistently occurred during the free play, escape, and tangible conditions of the FA following naps.
• Implementation of FCT led to reductions in problem behavior and improved use of communication across all three functional contexts (i.e., attention, tangible, and escape).

DISCUSSION

• Patricia engaged in different functions of problem behavior depending on if the FA occurred before or after scheduled naps. FCT led to reductions in problem behavior that led to the availability of more social and therapeutic opportunities.
• We demonstrated a method for using naps as a way to study relations between fatigue and problem behavior. Most behavior-analytic studies of this relationship have evaluated the effect of overnight sleep on problem behavior occurrence.
• Motivating operations (MO) include antecedent events that change the value of reinforcement. We believe that fatigue established the value of escape from task demands and access to tangible items and naps abolished the value of these reinforcers.
• We hope the results of this study provide evidence for how behavior analysts can contribute to the treatment of youth following brain injury.
• The current study showed data from only one participant. Future research should replicate these procedures to establish the external validity of these results.

METHOD

Participants, Settings, and Materials

• Patricia is an 11 year old Black female who was admitted to a specialized inpatient unit for the assessment and treatment of severe problem behavior thought to be secondary to a diagnosis of encephalitis.
• Sessions took place in classrooms and the cafeteria on the psychiatric inpatient unit. Classrooms and cafeteria measured 4.5 x 6.1 m.
• A two sided red/green card was used to differentiate between periods of reinforcement and non-reinforcement. During escape sessions, Patricia was prompted to complete double by double digit addition. During reinforcement periods, technicians played preferred music to Patricia using an iPad.

Experimental Design and Dependent Variable

• We conducted the functional analysis (FA) of problem behavior within a multielement design. A multielement design represents a single-case analysis in which the experimenter rapidly alternates between conditions to evaluate patterns more-or-less indicative of problem behavior occurrence (Kennedy, 2005).
• We conducted functional communication training (FCT) with a multiple baseline across functional contexts design. The multiple baseline design sequentially introduces an independent variable, in this case FCT, to show changes in problem behavior only when intervention is applied (Kennedy, 2005).
• Dependent variables were aggressive behaviors, including hitting, pulling hair, scratching, and kicking.

Nap Schedule

• We conducted a scatterplot analysis to determine when Patricia’s problem behaviors occurred. Behavioral Health Specialists recorded if Patricia engaged in problem behavior (yes or no) during every 30 min period of the day.
• Times of day most associated with problem behavior helped determine when treatment team scheduled naps

Functional Analysis of Problem Behavior (FA)

• FA conditions were conducted an hour before and an hour after a nap.
• Sessions of each FA condition lasted 5 min. Problem behavior produced 30-50 s access to the putative reinforcer during each condition (Attention, Free Play, Escape, Tangible) Functional Communication Training (FCT)

• FCT Escape: Patricia sat across the table from a behavioral technician. Patricia was directed to complete a predetermined amount of work before gaining access to reinforcement for 2 minutes. Technicians ignored problem behaviors.
• FCT Attention/Tangible: Patricia provided with 2 minutes undivided attention or access to preferred items. Before being directed to play alone or separate from the preferred item for a predetermined period. After the time expired, and Patricia was safe for 3 seconds, Patricia was able to request attention from behavioral technician or the preferred item for 2 min.

REFERENCES