Behavioral Interventions for Severe Problem Behavior in Children with Autism & Related Disorders

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Disclosures

- DoD: CDMRP AR 160059 A Multidisciplinary Intervention for Encopresis in Children with ASD
- NIH: R21 MH108873 Behavioral Economic Measures of Sensitivity to Social Reward in Children with ASD
- NIH: R03 082436 A Feasibility Study of the Elopement Prevention and Safety Training Program
- Organization for Autism Research Applied Research Grant
- NIH R01 MH104363 Comparing Behavioral Assessments Using Telehealth for Children with Autism
- NIH R21 MH104363 Objective Measurement of Aggression and Self-Injury in Children with ASD
Who’s Here Today?

By show of hands, how many of you are...

- Parents?
- Teachers?
- Administrators?
- SLPs?
- OTs?
- BCBAs?
- Paraprofessionals?
- Other?

Understanding Problem Behavior
Problem Behavior in Autism Spectrum Disorder

Although prevalence estimates vary (15%-65%)\(^1\), problem behaviors are more common in individuals with autism spectrum disorder (ASD) than same age peers.

Common problem behaviors include:

- Aggression
- Tantrums
- Self-injury
- Disruptive behavior
- Property destruction
- Pica
- Elopement
- Encopresis

• Severity ranges from mild to very severe

Emerson, (2011)\(^1\)

The Impact of Problem Behavior

Problem behaviors directly produce many negative effects on the individual who exhibits them

• Physical harm\(^1\)
• Exclusion from community services and peers\(^2\)
• Stigma

Also negatively affects almost every facet of a caregiver's daily life

• Poorer family functioning\(^1\)
• Lower marital satisfaction\(^1,2\)
• Higher rates of problem behavior in siblings\(^3,4\)
• Parental unemployment\(^5,6\)

ASD & Problem Behavior

- Problem behavior is **not** a core symptom of autism spectrum disorder (ASD)

- What are the core symptoms of ASD?
  - Diminished social communication
  - Restricted interests and repetitive behavior
  - Hyper/hypo sensitivity to sensory stimuli

Potential Causes of Problem Behavior

- Underlying medical issue
- Genetics/Neurology
- Personality/psychological condition
- Demonic possession
- Learned behavior
Learned Behavior is About Consequences

**Reinforcement**

A stimulus change that occurs after/because of a behavior and *increases* the likelihood of the behavior

- Positive Reinforcement (Gain): consequences = presentation of something
- Negative Reinforcement (Escape): consequence = removal of something

*It is only a reinforcer if it results in an increase in behavior*

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Examples of Common Positive Reinforcers

**Attention**: Praise, hugs, playing together, thumbs up, high five

**Items/Activities**: Listening to music, food, watching a video, playing a computer game
Examples of Common Negative Reinforcers

**Escape from/Avoidance of:**

- Tasks or instructions
- Nonpreferred activities
- Loud noises
- Attention

Other Important Ways to Classify Reinforcers

**Social:** provided by someone else

**Automatic:** directly produced by the behavior

**Natural:** typically maintains the behavior in the natural environment

**Arbitrary:** irrelevant to that behavior in the natural environment
How Problem Behavior is Influenced by Consequences

- Challenging behavior serves a purpose (i.e., there’s a reinforcer)
- Different children may engage in the same behavior for very different reasons
- Challenging behavior is sometimes the easiest way for a children to communicate
- Treatments based on an understanding of the child’s behavior are most effective
- Understanding a child’s behavior = determining the “function” of the behavior

Function vs. Topography

- **Topography** – the “form” the behavior takes
  - E.g., punching, kicking, biting, and throwing objects at someone are all different topographies of aggression

- **Function** – the “purpose” the behavior serves
  - Different topographies may all occur for the same reason
Vignette: Tim

• Tim has ASD
• Tim sometimes screams/tantrums and even occasionally hits his parents
• Sometimes he screams/hits when they make him turn off the television
• Sometimes he screams/hits them when they tell him he has to brush his teeth

A Typical Approach to Treatment Selection

Topographically prescribed treatments:
  — Problem behavior X = treatment Y
  — Example: biting = time out
    • Every time your child bites you should put him in time out
Vignette: Tim

Topographically Prescribed Treatment:
- Hitting = time out

When Tim hits his parents after his parents turn off the television he goes to time out

“When I hit, not only do I not get to watch television, I don’t get to do anything!”

When Tim hits his parents after being told to brush his teeth he goes to time out

“When I hit I don’t have to brush my teeth!”

An Alternative Approach

**Function**: the consequences that cause a behavior to be more likely to happen again
- i.e., the purpose a behavior serves

**Function-based treatment:**
- Problem behavior maintained by consequence X = treatment Y
- Example: biting maintained by attention = ignore
  - Every time your client bites you should walk away from them
Vignette: Tim

Function-based Treatment:
- Hitting maintained by access to preferred activities = time out
- Hitting maintained by escape from demands = follow through with demand

When Tim hits his parents after his parents turn off the television he goes to time out

“When I hit, not only do I not get to watch television, I don’t get to do anything!”

When Tim hits his parents after being told to brush his teeth they follow through and make sure he brushes his teeth

“When I hit I still have to brush my teeth”

Response Classes

For most individuals, several behaviors can serve the same function:
1. Asking nicely
2. Asking impolitely
3. Yelling
4. Crying/screaming
5. Hitting others
6. Hitting self

Some behaviors in the response class may be more probable than others, but if one doesn’t produce reinforcement, the next most probable will often occur
So What’s the Function?

- There is no comprehensive list of “functions” that maintain problem behavior
- However, some that appear more frequently than others
- Iwata et al. (1992) showed that the most common is escape from demands
  - Others include
    - Attention
    - Access to preferred leisure items/activities
    - Automatic reinforcement
  - Less common functions include:
    - Escape from social interactions
    - Escape from noise, or other specific stimuli

Functional Behavioral Assessments (FBA)

FBA: Any procedure that can be used to identify the function of a problem behavior

Major categories of FBA:
- Indirect
- Descriptive
- Experimental Functional Analysis (Analog)
Indirect Assessments

Functional assessments that do not involve direct observation of the behavior in question

— Many Formats
  • Structured/unstructured interviews with teachers, parents, etc.
  • Questionnaires
    – QABF
    – FAST
    – MAS
  • Rating Scales

Motivation Assessment Scale

ITEM RESPONSE
1. Does the behavior occur whenever any request is made of this person? 1 2 3 4 5
2. Does the behavior occur following a delay of 60 seconds? 1 2 3 4 5
3. Does the behavior occur following a delay of 120 seconds? 1 2 3 4 5
4. Does the behavior occur following a delay of 180 seconds? 1 2 3 4 5
5. Does the behavior never occur? 1 2 3 4 5

ITEM RESPONSE
11. Does the behavior stop occurring shortly after you give the person the toy, food, or activity he or she desires? 1 2 3 4 5
12. Does the behavior stop occurring shortly after you give the person the toy, food, or activity he or she desires if the person is not wanted? 1 2 3 4 5
13. How long does the behavior stop occurring? 1 2 3 4 5
14. Does the behavior stop occurring shortly after time to this indicate you stop asking or missing demand at this person? 1 2 3 4 5
15. Does the behavior occur whenever any request is made of this person? 1 2 3 4 5
16. Does the behavior occur whenever any request is made of this person? 1 2 3 4 5

SCORING

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</table>

Total score = 19
Mean score = 4.75

Recommended minimal

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Marcus Autism Center
Indirect Assessments

Limitations:

• Most only evaluate for most common functions

• Results can be hard to interpret
  • Most always produce a finding
    ▪ Possibility for mistakenly identifying a function
  • Results are generally ordinal
    ▪ Possibility for mistakenly ruling out a function

Some Questions that Can Give Some Insight Into Function

• “Does it consistently occur more frequently in certain times/places/settings?”

• “What would happen if...[restrict preferred items; restrict attention; present a demand]”

• “What is he/she “trying to say” with this behavior?”

• “When are some times/situations when the problem behavior never occurs?

• “What is the one thing I could do that would guarantee [the problem behavior] will occur?”
Indirect Assessments

- What the research shows:
  - Most lack sound research on the psychometric properties
  - Those that have been studied have been compared to more rigorous functional assessments with the most challenging types of problem behavior
  - These studies have shown only modest correlations

Indirect Assessments

So what are indirect assessments good for?
- Best for developing hypotheses that can be further evaluated using more thorough functional assessments
- May be good enough for less challenging behavior
- May be the only option for low frequency behaviors
Descriptive Assessments

- Functional assessments that involve direct observation, but do not manipulate the environment
  - Allow consequences (and sometimes antecedents) to occur naturally

- Examples:
  - Informal observation
  - A-B-C data collection
  - Scatterplot
  - Lag Sequential Analysis
Descriptive Assessments

Limitations:
• Can’t be used with low frequency problem behavior
• Reactivity can skew results

Descriptive Assessments

• What the research shows:
  • More thorough than indirect assessments
  • Better correlation with gold standard assessments

So what are indirect assessments good for?
• Very good for developing or even evaluating hypotheses
• Will often be good enough for even the most challenging behavior
Functional Behavioral Assessment

• Best Practice:
  – Multisource/multimethod functional assessment

• Multimethod: use both indirect and descriptive assessments
• Multisource: gather information from more than one person (indirect assessments) and in more than one situation (descriptive assessments)

Interventions
Crisis Management, Behavioral Intervention, & Behavior Management

Crisis Management: doing whatever is necessary to end a particular instance of problem behavior in a manner that will minimize harm to people and/or the environment

- May include reinforcing problem behavior
- You can only call it a crisis when it is unexpected, and it’s not unexpected once a pattern emerges

Behavior Management: a planned set of procedures/strategies that will decrease the impact of problem behavior (but not the frequency/probability)

Behavioral Intervention: a set of procedures that will decrease (over time) the probability that problem behavior will occur in the first place

- Problem behavior may increase in the short-term

Crisis Management Strategies
Physically Managing Problem Behavior

- May include techniques, such as:
  - Redirection
  - Blocking
  - Restraint/Holds
  - Seclusion

- May include methods of immobilizing the individual (restraint) or securing the individual in a safer space (seclusion)

Negative Side Effects of Restraint

- Without appropriate training, caregivers and staff may become reliant upon physical management or seclusion, which can result in...
  - Use of physical restraint when not required
    • “Too effective”
  - Escalation of problem behavior and increased risk of harm
  - May actually be a preferred outcome for some with ASD
**De-Escalation and Potential Counter-Therapeutic Results**

- Strategies designed to do whatever it takes to avoid or end problem behavior
  - **Verbal de-escalation**
    - If problem behavior is maintained by attention, may reinforce problem behavior

- **Providing free access to preferred items**
  - Increases the probability of problem behavior in future situations

- **Limited presentation of demands**
  - Care may be compromised

- **Escape from non-preferred activities/procedures**
  - Care is not delivered

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**Marcus Crisis Prevention Program (MCPP)**

- Focused on:
  - Safety of the patient and the caregiver
  - Utilize the least intrusive procedures necessary
    - Emphasizes the importance of not placing patient’s off-balance or managing their behavior by holding fragile joints
  - Minimize or when possible eliminate the need for restraint/containment
  - Based upon the principles of ABA to minimize counter-therapeutic results whenever possible
  - Individualized and realistic hands-on training
Responding to Crisis Situations

• Once a situation has been identified as a crisis, short-term use of de-escalation approaches may be necessary and appropriate to ensure the safety of everyone involved

• Steps
  1. Assess and stabilize the situation
  2. Identify the cause of problem behavior
  3. Eliminate the cause of problem behavior
  4. Containment
  5. Post Crisis

Note: It is critical to only implement de-escalation procedures when absolutely necessary (i.e., in a true crisis situation).

Behavior Management
Common Behavior Management Strategies

• Example: Elopement
  – Establish an elopement emergency plan
  – Post emergency contact numbers in an easy to reach location
  – Learn local laws/policies about emergency response
  – Identify those willing to help search in the event elopement occurs
  – Teach key safety skills (e.g., giving safety information, ability to swim)
  – Use technology that can help retrieve a missing child rapidly

Using Protective Equipment

This is an extreme example, but shows what is possible
More Common Protective Equipment

Allows one to use work with an aggressive patient without injury

Behavioral Interventions
1 Step Backwards → 2 Steps Forward

Interventions will frequently require decreasing expectations in other areas while problem behavior is addressed

– Academics
– Compliance with tasks
– Communication
– Schedule of reinforcement

Some may object to decreasing expectations (sometimes out of a sense of “justice” or differing priorities)

• Typically, performance in these areas is already poor and inconsistent
• Decreasing expectations so that structure can be added allows for eventually exceeding current levels of performance

How Easy/Hard is it going to be to Produce the Desired Behavior Change?

Do caregivers have what it takes to produce the change?

– Time
– Energy
– Physical strength
– “Emotional fortitude”

“Is the juice going to be worth the squeeze?” – John Lutzker, (2007)
The Impact/Effort Ratio

What will work

What’s possible to implement

Behavior Management Strategies
Four Components to Every Good Treatment

1. Antecedent-based strategies
2. Extinction
3. Reinforce an alternative behavior
4. Increasing Social Validity

Component 1: Antecedent-based Strategies

Strategies that decrease the probability of behavior occurring through manipulating events that reliably precede the behavior

Manipulate either...
- Motivation
- Discriminative stimuli
Altering Motivation

Interventions based upon manipulating motivation include:
  • Noncontingent reinforcement
  • Enriched environment
  – Important to make sure these are not contingent upon problem behavior

Discriminative Stimuli

Stimuli that signal the availability of reinforcement

Example: problem behavior occurs in the presence of one parent but not the other

Interventions based upon stimulus control include:
  – Picture schedules/visual supports
  – Treatments for behaviors that are not destructive but are inappropriate at the wrong time/place
**Over Reliance on Antecedent-based Strategies**

Both of these are reasonable points of view, and caregivers have the right to choose where they fall on the continuum. The problem comes when a caregiver chooses one position on the continuum but expects a different result.

**Component 2: Extinction**

Disruption of the response/reinforcer relationship
- Most often involves discontinuing reinforcement

Extinction of responses maintained by...
- **Positive reinforcement:** problem behavior results in no access to the reinforcer
- **Negative reinforcement:** negative reinforcer (e.g., demands) persist until the absence of problem behavior
- **Automatic reinforcement:** very difficult or impossible because in most instances it is not possible to eliminate the reinforcer

Most treatments have been shown to work better or only work if it includes EXT (A few exceptions)
Side Effects of Extinction

Generativity
- There are several ways in which extinction can result in an increase in the targeted behavior or others (i.e., spontaneous recovery, resurgence, reinstatement, renewal, etc.)

Extinction bursts
- Around 40% of the time there will be a temporary increase in the intensity or variability of responding before there is a decrease

Potential for intermittent schedules of reinforcement
- Reinforcing some but not all responses will result in higher rate behaviors that are even harder to extinguish

Component 3: Reinforce an Alternative

When problem behavior serves a social function, it can often be replaced with a functionally equivalent alternative response

- Examples:

<table>
<thead>
<tr>
<th>Problem behavior is maintained by</th>
<th>Functionally equivalent response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to preferred leisure item</td>
<td>Requests for leisure item</td>
</tr>
<tr>
<td>Breaks from demands</td>
<td>Compliance</td>
</tr>
<tr>
<td>Caregiver attention</td>
<td>Asking others to play</td>
</tr>
</tbody>
</table>
Component 3: Reinforce an Alternative

When replacing problem behavior, the topography of the request is usually not important at first
- The goal is to replace problem behavior rapidly
- Thus, at least to start, replacement behaviors should ideally be...
  - Already in the individual’s repertoire
    - part of an already present response class?
  - Easier to emit than problem behavior
  - Always reinforced
  - Functionally equivalent (i.e., produce the same reinforcer)

Similarly, if replacing problem behavior with compliance, the amount of work is usually not as important at this stage.

Common Pitfalls when Using Reinforcement

- Not using the functional reinforcer
- Using reinforcers that are frequently available at other times
- Using reinforcers infrequently or inconsistently
- Failing to give reinforcement immediately after the desired response
- Failing to fade reinforcement
- Eliminating reinforcers completely
- Offering the reinforcer when the child is noncompliant or disruptive (dangling a carrot)
- Failing to give more or better reinforcement when the child is required to work harder to obtain the reinforcer (as the reinforcement is faded)
Component 4: Increase USEFULNESS

Start taking 2 steps forward:

- Generalization
- Schedule Thinning
- Fading
- Expand the number/variety of alternative behaviors

Fading

Gradually introducing or removing a stimulus
- Delays
- Work
- Protective equipment

Great for escape maintained problem behaviors

The individual sets the pace
- If problem behavior re-emerges then you are moving too fast

Disadvantages
- Can be slow, and you may never know if it just isn’t going to work (i.e., “should we just go slower?”)
Practice Sessions

- Give yourself opportunities to practice the skills in a low pressure situation where you can...
  - plan ahead
  - be systematic
  - leave suddenly without too much inconvenience or embarrassment
  - control as much as possible about the situation
  - follow-through on behavior management strategies
  - end on a good note

Practice Sessions

Times when you should not implement a new strategy for the first time
- You make a trip to the grocery store because the family has no food in the fridge
- You are on the phone with the bank and you’ve waited 20 minutes to talk to a real person
- The family is going out to eat for a family member’s birthday
- You are in a rush to get the kids out the door for school and you are already late
Practice Sessions

Good times to practice a new strategy for the first time

– You take a trip to the grocery store when you don’t really have to buy anything
– You make arrangements with a friend to have her give you a phone call but you tell her ahead of time you may hang up suddenly
– The family goes out to eat with the specific goal of using that time to practice
– You are not in a hurry to go anywhere and you’ve got some spare time to practice

Practice Sessions

• Keep realistic expectations
• Limit problematic factors that are not crucial to the experience
  – E.g., if your child sometimes has a hard time waiting, but you aren’t specifically working on waiting, make modifications to limit waiting
• Follow through on use of the behavior management strategy
• Use a function based behavior management strategy
• Have an exit plan
• Always end on a good note, don’t push your luck!
Practice Sessions – Example: Going out to Eat

- Define success ahead of time
- Go early, maybe 4:00 (no waiting)
- Go to a Mexican or Italian restaurant (food on the table when you sit down, i.e., less waiting)
- Tell your server what you are doing, and that you may leave suddenly, maybe even ask them to run your credit card early if possible
- Only address significant problem behaviors (keep realistic expectations)
- Ignore or block less serious problem behaviors or those that you are not specifically targeting
- Stick to your rules: Follow-through
- Use a function based-strategy
- Don’t push your luck. It is tempting to overstay (end on a good note)

Take Home Points

- Problem behavior is usually orderly, even if it seems random
- Reducing problem behavior depends on addressing the cause, which for most kids involves knowing what consequences are maintaining (reinforcing) it.
- Parent behavior has to change in order to change child behavior
- Making those changes is often hard, so plan ahead
- Be willing to take a step back so you can take two forward
- Understand the behavior from the child’s perspective
- Be systematic
Thanks for Your Attention