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Dangerous Behaviors

theBHPN behavioral health provider network **CEUs for BCBAs**

Learning Objectives

Participants will be able to:

- ❑ Describe relationship between intellectual disability and dangerous behaviors
- ❑ Describe the relationship between sleep and dangerous behaviors
- ❑ Describe the difference between behaviors that are dangerous or potentially dangerous and other maladaptive behaviors
- ❑ Describe how the fight or flight response is relevant to dangerous behaviors
- ❑ List 4 types of dangerous behaviors

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Learning Objectives

Participants will be able to:

- Define self-injurious behavior (SIB)
- Describe how to determine the factors that should be considered when making the decision between a FA and FBA
- Describe the empirical research supporting parent/caregiver-mediated treatment in reducing dangerous behaviors
- Describe factors that increase physical restraints and blocking risks

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Agenda

- Defining dangerous behaviors
- Types of dangerous behaviors
- Why sleep is important
- The fight or flight response
- SIB: What do we know?
- Aggression: What do we know?
- Dangerous elopement: What do we know?
- Caregiver/parent-mediated treatment
- FBAs and FAs
- Being safe: Standard Clinical Procedures (SCPs)

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Definitions

Dangerous behaviors are a **subset** of maladaptive or problem behaviors. Dangerous behaviors are severe behaviors that could result in physical injury requiring first aid or medical attention or behaviors that could result in law enforcement involvement.

Dangerous behaviors **do not** include age-appropriate behaviors such as; biting in a 3-year-old or siblings hitting each other with open hands not resulting in the need for first aid or medical attention.

Environmental or Personal Accommodations

- Dangerous behaviors often require significant environmental or personal accommodations be made in order to keep the individual or others safe
- Examples of this are wearing a helmet to prevent injury from head banging, removing all sharp objects from the house, or installing multiple locks on doors

Types of Dangerous Behaviors

- ☑ SIB
- ☑ Physical harm to others (aggression)
- ☑ Dangerous elopement
- ☐ Sexually inappropriate behaviors
- ☐ Property damage
- ☐ Eating non-food items (not age appropriate)
- ☐ Behaviors connected to elimination

Age-Appropriate Behavior

Young children **elope**, put things in their mouths and bite!

That is just what they do.

Importance of Addressing Sleep

Sleep Problems

Associated with sleep problems (Mannion & Leader 2014):

- Aggressive behaviors and challenging behaviors
- GI problems
- Parental stress
- And more!

- Children with ASD who have sleep problems tend to have more severe:
  - Autism symptoms
  - Stereotypic behaviors
  - Social difficulties
  - Emotional dysregulation
  - Behavior problems (Vriend et al., 2011)
- Hot of the Press: Increased sleep problems associated with COVID
  - Bedtime delays and decreased sleep duration and ncreased screen time exposure (Bruni Sacco & Melegari, 2021)

Severe Sleep Problems

- Behavioral interventions alone for sleep are less likely to be successful
- Sleep hygiene can be be part of a behavioral treatment program, but sleep hygiene alone is unlikely to be successful
- Standard extinction can sometimes be helpful but has been rarely studied in youth/adults with ASD/DD and is only considered possibly successful in younger children (Vriend et al., 2011)

"If you don't improve sleep nothing else you do will matter."

- Robert Graff MD

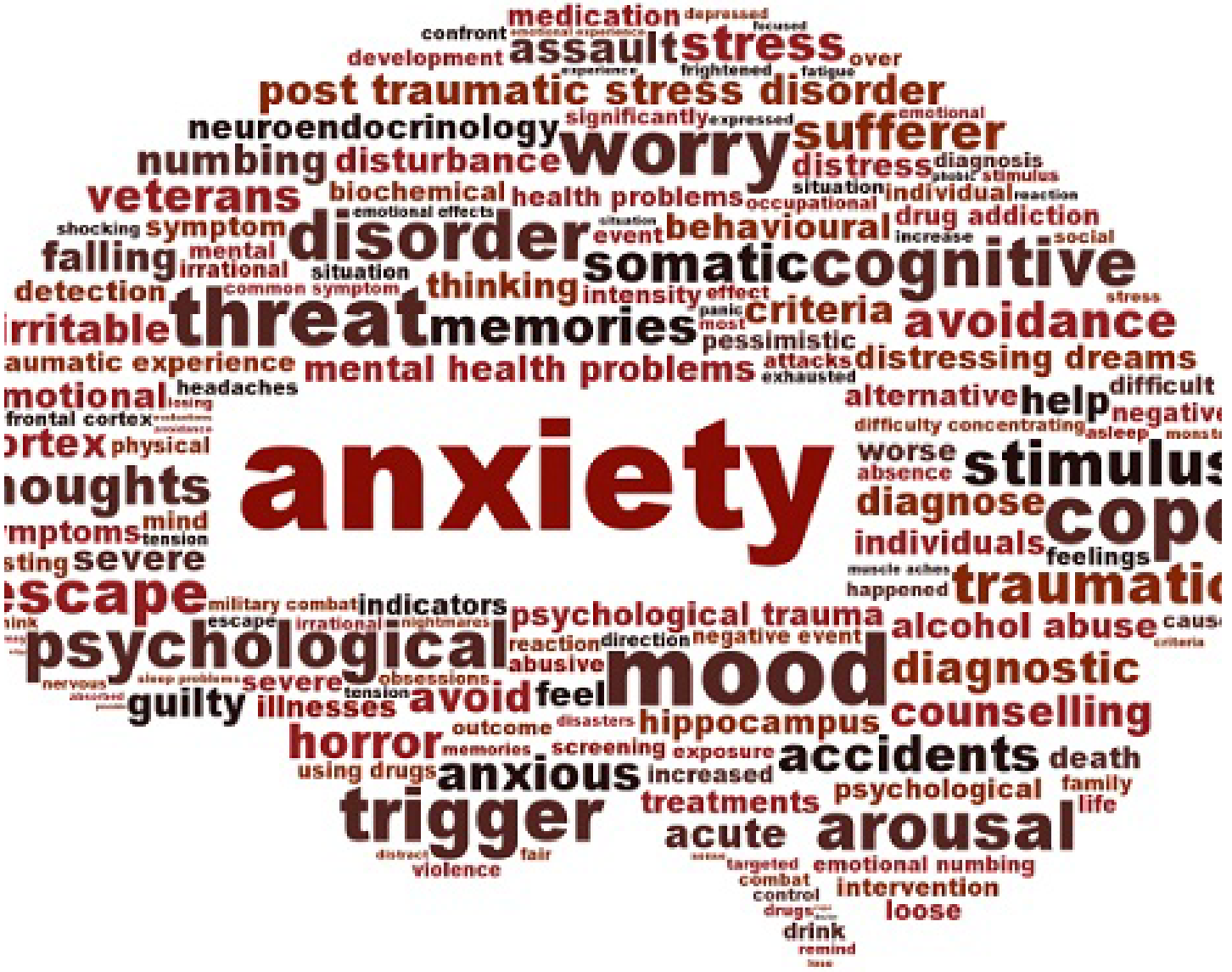
Other Considerations

"… biological factors such as pain, illness, and fatigue can function as setting events for problem behavior in individuals with ASD and IDD…" (Maskowitz et al., 2017)

Medical Problems

- GI problems
- Dental problems
- Pain
- Other medical problems

High Physiological Arousal/Anxiety



"… despite this research and longstanding clinical concerns regarding anxiety in children with ASD (e.g., Kanner, 1943), behavior analytic assessment and intervention research in children with ASD has often neglected the role of anxiety, particularly its potential role in contributing to problem behavior." (Maskowitz et al., 2017)

Why Behavior Analysts Should Study Emotion:
The Example of Anxiety
Friman, Hayes & Wilson, 1998

"…anxiety disorders may occur as a function of derived rather than direct relations between public events and overt and private responses with avoidance functions."

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Why Behavior Analysts Should Study Emotion

A neutral stimuli can acquire discriminative functions indirectly without direct training

Private events can acquire discriminative functions

High anxiety often occurs with little direct learning or direct learning is out of proportion with the strength of response

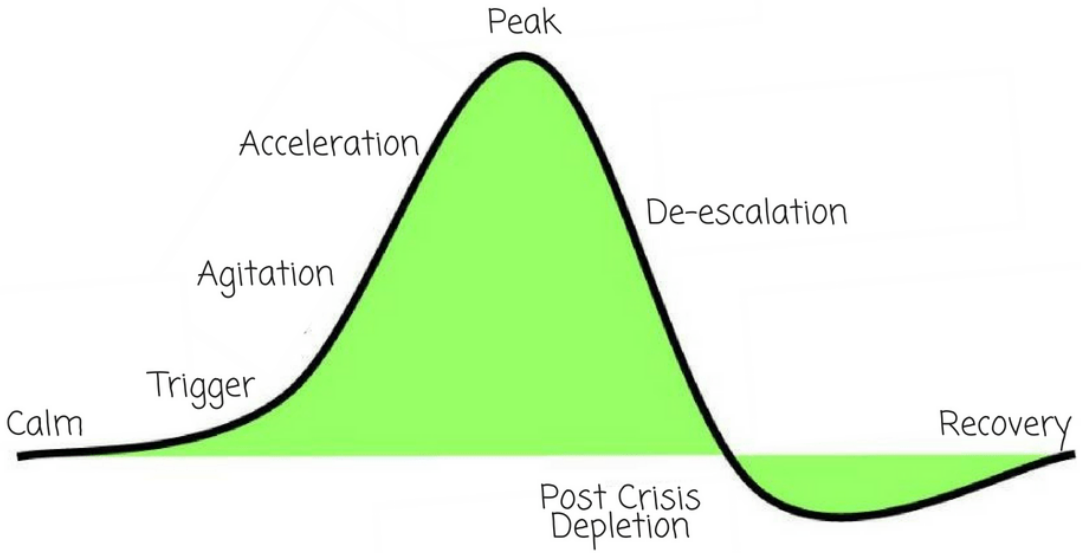
The primary function of anxious behavior is avoidance

Fight or Flight Response

- Autonomic nervous system has a direct role in physical response to stress
- Sympathetic nervous system (SNS)
- Parasympathetic nervous system (PNS)

SNS → **Fight or Flight**

Have you ever responded to an emergency or had a panic attack?



—FIGHT OR FLIGHT—

Noticeable Effects

- Pupils dilate
- Mouth goes dry
- Neck & shoulder muscles tense
- Heart pumps faster
- Chest Pains
- Palpitations
- Sweating
- Muscles tense for action
- Breathing fast & shallow hyperventilation
- Oxygen needed for muscles

Hidden Effects

- Brain gets body ready for action
- Adrenalin released
- Blood pressure rises
- Liver releases glucose to provide energy for muscles
- Digestion slows or ceases
- Sphincters close
- Cortisol released to depress the immune system

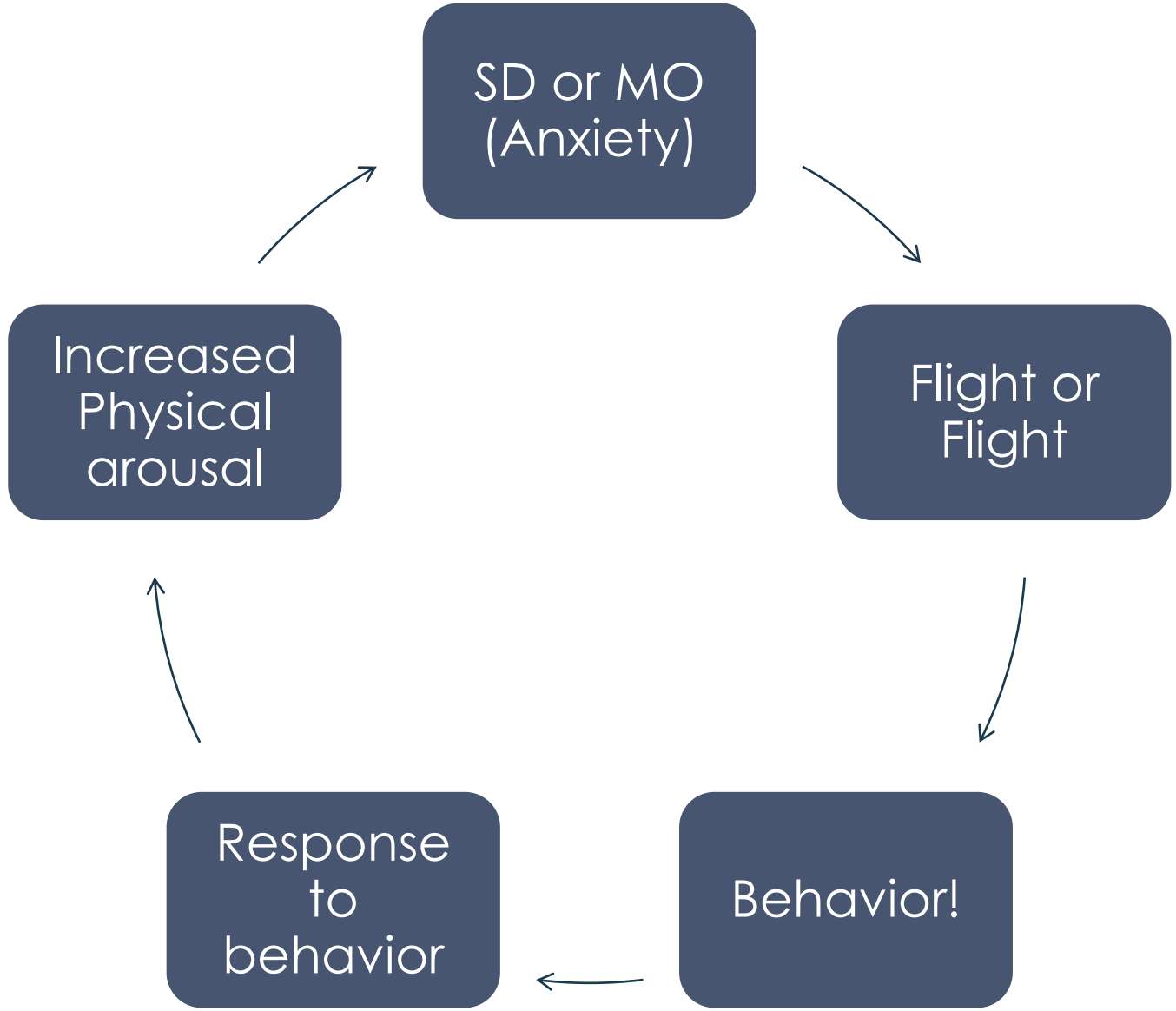
Anxiety as an MO or Discriminative Stimulus

- Anxiety can serve as a **Motivating Operation (MO)** to problem behavior
- Anxiety may serve as discriminative stimulus for problem behavior!

(Maskowitz et al., 2017)

Motivating Operations (M.O.) *refers to the internal processes or desires of an individual that change or improve the value of a certain stimulus*

Making It Worse?



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Extinction Procedures with Care

Child expresses fear about going to bed alone and has a “tantrum”

Mom feels panicky when non-verbal teenage son yells

Prevention of Arousal

- Antecedent Procedures
- Priming
- Schedules
- Transition Warnings

Treating Behavior: 3 Powerful Tools

Determining Function

Functional Communication Training

Caregiver Training

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Importance of Determining Function

- Function-based treatment for behavior reduction has consistently been shown to increase treatment effectiveness by twice as much (Moskowitz et al., 2017)
- This ensures the treatment team is addressing the function of the behavior and not unintentionally reinforcing the identified behavior

Efficacy of Functional Communication Training (FCT)

- FCT is one of the most widely studied interventions to reduce behavior
- More than 90 peer-reviewed articles supporting its efficacy (Carr & Durand, 1985; Falcomata & Wacker, 2013; Tiger, Hanley, & Bruzek, 2008; Wong et al., 2014)

FCT Steps

- Identifying the function or purpose of the behavior
- Teaching an alternative communicative response
- Function-based reinforcement for the communicative response
- Withholding reinforcement following challenging/aggressive behavior

Functional Communication Training (FCT)

Gerow et al 2018

Systematic review of 26 peer-reviewed studies on parent-implemented FCT

- 78 parent implementers with 69 children with ASD
- 50 = 3-5 y/o
- 9 = <36 months
- 7 = 6-10 y/o
- 3 = 11-14 y/o

Caregiver-Implemented FCT

- 90 peer-reviewed articles supporting its efficacy
- Systematic review of 26 peer-reviewed studies on parent-implemented FCT (Gerow et al., 2018):
  - 78 parent implementers with 69 children with ASD. Ages:
    - 50 = 3-5 y/o
    - 9 = < 36 months
    - 7 = 6-10 y/o
    - 3 = 11-14 y/o

"Across studies, parent-implemented FCT was effective in reducing child challenging behavior, and in some cases, intervention outcomes maintained and generalized to novel settings and implementers."

Gerow et al., 2018

Types of Dangerous Behavior

Self-injurious behavior

Aggressive behavior

Dangerous elopement

Self-Injurious Behavior (SIB)

SIB Definition

"Self-injurious behavior (SIB) may be defined as comprising non-accidental self-inflicted acts causing damage to or destruction of body tissue and carried out without suicidal ideation or intent." (Yates, 2004)

SIB Facts

- SIB occurs in individuals with ID with and without ASD but is more common with individuals who have both ASD and ID
- Social-communication deficits, restricted and repetitive behavior, and abnormalities in sensory processing are associated in SIB (Summer et al., 2017)
- **Early onset:** Injurious SIB and 'proto-SIB' (potentially self-injurious behaviors not leading to tissue damage)usually emerge before or around 25 months (Furnis & Biswas, 2012)

SIB Behavior Patterns

Many young children show an undifferentiated pattern of responding during functional analyses of SIB

When SIB is present it's common for an individual to have more than one type of SIB

SIB is associated with aggression, impulsivity and repetitive behavior (Furnis & Biswas, 2012)

Consequences of SIB

- Infection
- Scarring
- Concussion
- Accidental poisoning
- Fractures
- Eye and dental injuries
- Bowel obstruction
- Premature death

Summers et al., 2017

Automatically Maintained or Socially Mediated

The success rate in completely eliminating SIB with behavioral intervention alone is not strong (Furniss and Biswas, 2012)

SIB can be a way to escape the Fight or Flight response or reach homeostasis

Genetic disorders associated with SIB

- Distinctive behavioral phenotype of SIB are found in over 12 genetic conditions associated with ID. Examples include:
  - Biting of lips and fingers in Lesch-Nyhan
  - Self-hitting in Cornelia de Lange
  - Removing finger and toenails in Smith Magenis
  - Skin picking in Prader Willi syndrome

- These genetic disorders suggest biological factors are also involved in SIB

Treatment for SIB

- When high internal (Fight or Flight) arousal is involved, proactive strategies may help:
  - Intervene very early in the Fight or Flight response
  - Teach self-soothing
  - Don't trigger Fight or Flight!
- Consequence-based interventions can be effective (Davis and Rispoli, 2018)
- Stopping ABA

Aggressive Behavior

Aggressive Behavior Treatment Meta-analysis

Cochrane Library (Ali et al., 2015)

- No behavioral research met the meta-analysis criteria
- Studied included in the analysis:
  - CBT
  - Mindfulness
  - Relaxation
  - Anger management
  - Individual therapy
  - Group therapy
  - Assertiveness training

Cochrane Library Conclusions

- "The existing evidence on the effectiveness of behavioral and cognitive-behavioral interventions on outwardly-directed aggression in **children and adults with intellectual disabilities is limited**. There is a paucity of methodologically sound clinical trials and a lack of long-term follow-up data. Given the impact of such behaviors on the individual and his or her support workers, effective interventions are essential.

- We recommend that randomized controlled trials of sufficient power are carried out using primary outcomes that include reduction in outward-directed aggressive behavior, improvement in quality of life, and cost effectiveness."

Single Subject Design

13-year-old boy

- The program included:
  - High density of positive reinforcement
  - Tokens
  - Choice making
  - Response cost
  - Overcorrection
  - Physical restraint
- Treatment occurred in a self-contained classroom at a school for children with special needs
- Aggressive behavior reduced to near zero and maintained for over one year

Foxx & Miendl, 2007

Reviews

Severini, Ledford & Robertson, 2018

Brosnon & Healy, 2011

Severini, Ledford & Robertson, 2018

Findings for aggressive behaviors (review):

1. There is little evidence for improving behavior in a typical school setting
2. Race and ethnicity reporting were rare (36%), "but instead of underrepresentation of minority groups, we found that there was overrepresentation"
3. Most research is conducted with children not youth; this is consistent with research on ASD in general
4. Non-function-based interventions are common

Function Based & Non-Function Based

Severini, Ledford & Robertson, 2018

Table 2 Frequencies of intervention components by FB and NFB

Intervention component	Function-based	
	FB	NFB
Choice	3	3
FCT	21	1
Instructional modification	3	3
Material alteration	0	2
Modeling	2	8
Negative consequences	6	5
Non-contingent access	11	10
Peer-mediated	0	4
Positive consequences	13	11
Prompting	4	13
Restricted access	24	11
Sensory-based	0	4
Social narratives	0	13
Social skills training	0	1
Visual support	0	4

FB function-based, *NFB* non-function-based, *FCT* functional communication training

Brosnon & Healy, 2011: Review

- 12 single subject
- 6 multi subject
- No study with more than 4 subjects
- Only 5 studies included subjects 12 and over
- 7 studies included an FBA

Table 1
Summary of variables analysed across each of the studies included in the review. DNRO (differential negative reinforcement of other behaviors), DRA (differential reinforcement of alternative behaviors), DRO (differential reinforcement of other behaviors), FCT (functional communication training).

Study	*n*	Age range	Design	Target behavior	Intervention	Outcome	Functional assessment
Carr et al. (1980)	2	9–14 years	Multi-element	Kicking; hitting biting; pinching scratching; hair pulling	Visual cue (antecedent); DNRO/DRA; environmental escape extinction	Decrease to low level	EFA demand/no demand situations
Dyer et al. (1990)	2	5–11 years	Within subjects reversal design	Kicking; hitting biting; pinching; scratching	Choice making; response blocking; contingent exercise	Consistent reductions; limited magnitude	No
Horner et al. (1991)	3	12–14 years	Reversal design	Hitting; biting shoving; hair pulling	Interspersed requests	Dramatic reductions in target behavior	FBA not specified
Grace et al. (1994)	1	11	Reversal design	Hitting; pushing; throwing objects	FCT; physical restraint	Reduced to zero levels	FBA not specified
Charlop-Christy and Haymes (1996)	4	5–7 years	Multiple-baseline across participants using multi-elements	Kicking; hitting; spitting; throwing objects	DRO; time out; reprimand	Reduction in target behaviors	No
Heckaman et al. (1998)	4	6–9 years	Alternating treatments	Kicking; hitting biting; spitting; scratching; pulling hair	Least-to-most prompting vs. progressive time-delay; low vs. high effort task demands	Lower rates of target behavior	No
Thompson et al. (1998)	1	7	Reversal design	Kicking; hitting; pinching; scratching	FCT; planned ignoring; escape extinction; response blocking	Reduced to at or near zero levels	Modified EFA; preference assessment
O'Reilly et al. (1999)	1	10	Multi-element	Hitting; biting; scratching	Compared extinction and non-contingent reinforcement	Rapid reduction in target behavior NCR superior	EFA
Braithwaite and Richdale (2000)	1	7	Multiple-baseline across behaviors	Forceful contact to person with head or hand	Extinction; FCT	Rapid reduction to zero levels	FBA: (ABC behavioral interview)
DeLeon et al. (2000)	1	11	Multi-element	Kicking; hitting; biting; head butting; grabbing	FCT	Reduction in target behaviors	EFA
Massey and Wheeler (2000)	1	4	Multiple-baseline across settings	Verbal and physical aggression	Photographic activity schedules; most-to-least prompt fading	Successful transitions No TB increased task engagement	No
Schreibman et al. (2000)	3	3–6 years	Multiple-baseline across participants	Kicking; hitting; biting; pinching	Video filming (transitions); reinforcement absence of target behaviors	Rapid decrease in 1 participant gradual decrease in remaining 2	No
Frea et al. (2001)	1	4	Multiple-baseline across settings	Kicking; hitting; biting	Picture Exchange Communication System (PECS)	Immediate decrease reduced to zero after 6 days	FBA not specified
Mueller et al. (2001)	1	8	Multi element	Kicking; hitting; biting; pinching; head butting; slapping	Antecedent manipulation of reinforcers	Reduction in target behaviors	EFA
Borrero et al. (2004)	1	13	ABCD	Kicking; hitting; biting; throwing objects	Compliance training; non-contingent escape and enriched environment; escape extinction; altered topography of instructions	Immediate decrease of TB to zero increased compliance	EFA
Borrero and Vollmer (2006)	1	7	Multiple-baseline across settings	Kicking; hitting; biting; spitting	Non-contingent attention + extinction; DRA + extinction	Lower rates of target behavior increased compliance	Analysis and preference assessment
Foxx and Meindl (2007)	1	13	Multi-element	Kicking; hitting; biting; pinching; head butting	Token economy; choice making; response cost; overcorrection; physical restraint	Reduced to at or near zero levels	FBA not specified naturalistic observation
Ringdahl et al. (2009)	1	18	Multi-element	Pushing; hitting	DRA; non-contingent reinforcement; FCT; positive punishment	Reduced to at or near zero levels	Modified EFA

Most Common Interventions

7 studies used extinction

5 studies functional communication training

5 studies incorporated visual cue prompts

5 studies used differential reinforcement procedures

3 studies used environmental enrichment

Brosnon & Healy, 2011

Results

- When an FBA was done, escape was determined to be the most common function
- Best results were for the studies that conducted an FBA
- Only 4 studies did a follow-u; all 4 reported good maintenance

Brosnon & Healy, 2011

Video Modeling

Video Self-Modeling

- Video self-modeling with 3 students with high rates of aggressive behavior:
  - Self-harm and aggression towards others (e.g., biting, hitting, kicking, scratching, pulling hair, or using items to cause harm to self or others)
- Conducted FA
- Implemented video self-modeling

Results: of video self-modeling:

- Decreased of aggression rates in all participants
- 2/3 participants showed greater reduction in aggressive behavior and increases in pro-social behavior

Sadler, 2019

Dangerous Elopement

Differential Reinforcement for Elopement

- Single subject using differential reinforcement without blocking reduced elopement in a 6-year-old girl with ASD
- The 6-year-old had other maladaptive behaviors but only elopement was targeted in this study

Boyle et al., 2019

Parent/Caregiver Mediated Treatment

Meta-Analysis
11 studies

Tarver et al., 2019

Results demonstrated good efficacy of parent-mediated behavioral treatment

Increases parent efficacy

Decreased parent stress

Decreased behaviors

Tarver et al., 2019

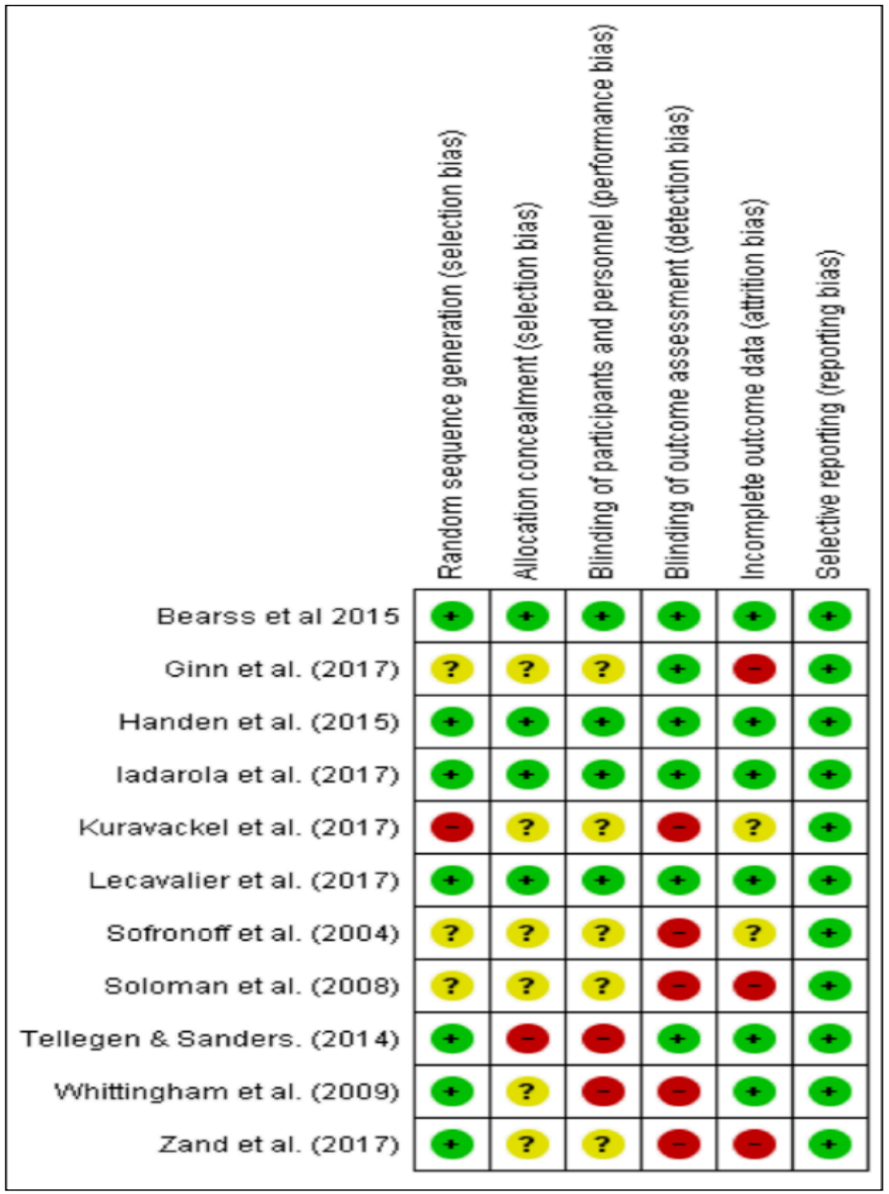


Figure 6. Risk of bias summary: review authors' judgments about each risk of bias item for each included study.

Bearss et al., 2015

Parent education (parent direct beneficiary) v. Parent training or parent-mediated (child direct beneficiary)

Parent training resulted in significant decrease in disruptive behavior compared to education alone

89 parents – Parent training

91 parents – Parent education

Across 6 centers, randomized

267 children with ASD (3-7 y/o)

Iadarola et al., 2017

- Parent training (mediated) v. parent education
- 180 children with ASD
- Parent training demonstrated greater improvement in decreased parenting stress
- Parent training demonstrated greater decrease in child problem behavior
- Parent training demonstrated greater parental competence
- Randomized across 6 sites

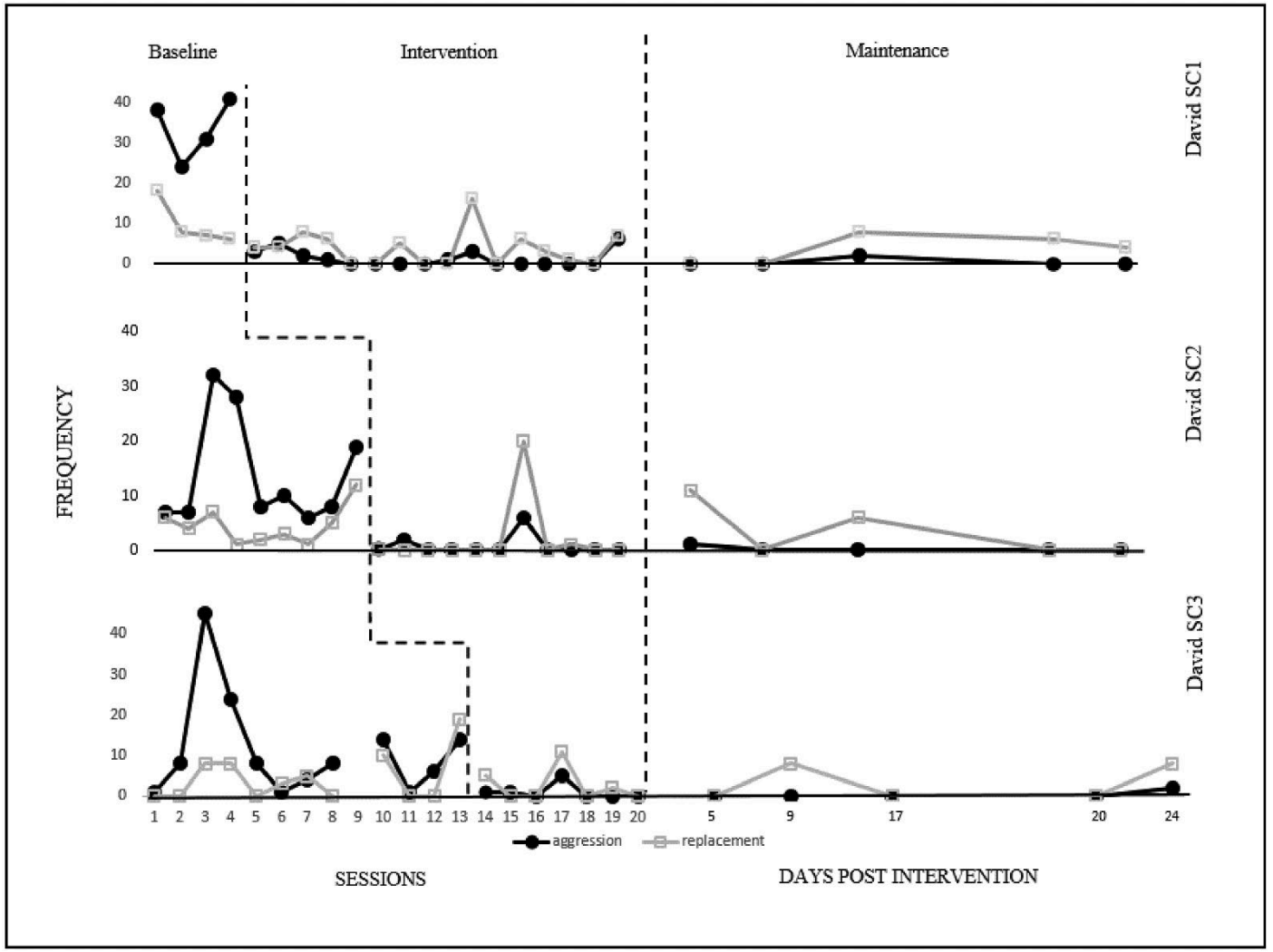
Single Subject Design

4 participants with challenging behavior

- Strategies for reducing problem behavior and increasing replacement behavior:
  - Family-implemented interventions
  - Individualized instruction
  - Modeling of intervention procedures
  - Direct feedback after observation of parent
  - Provided opportunity for generalization
  - Manual and checklists
  - Routine-based

Crone and Mehta, 2016

Result Example



Crone and Mehta, 2016

Working with Caregivers/Parents

- Deliver clear and specific instructions to caregivers/parents
- Provide caregivers/parents with a checklist designed to serve as a script for effectively implementing antecedent and consequence strategies (to promote the use of consistent and clear messages to the children)
- Interventionist model of specific practices for caregivers/parents while using the checklist
- Allow caregivers/parents to match-to-sample the strategies they needed to use
- Provide guided practice in a simulated setting
- Provide direct feedback to the caregivers/parents after observing caregiver/parent behavior
- Provide opportunities for caregivers/parents to generalize learned skills to the real untrained setting

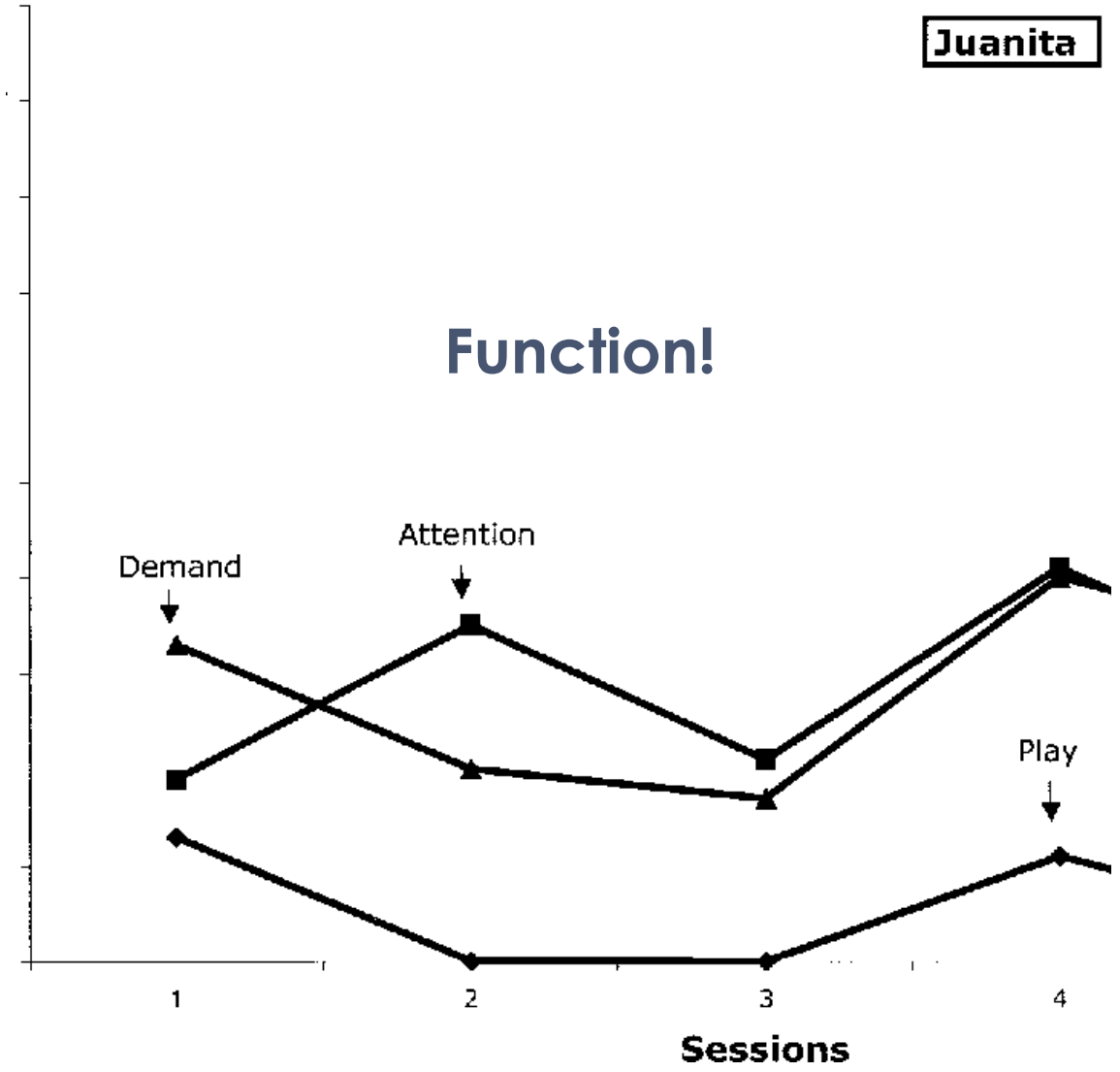
Crone and Mehta, 2016

BIPs: The Importance of Caregiver Buy-In

- Important that caregivers know how to respond to behavior (they are there most of the time)
- If client and caregiver are both experiencing the fear or anger nothing will work
- Use caregiver-friendly language
- Model for caregivers
- Provide lot of social reinforcement

The Importance of Fidelity and Function

- Determining the function of a behavior is key
  - Nathen Call PhD, BCBA-D
    Marcus Autism Center
- Fidelity of implementation needs to be established both with parents and paraprofessionals alike
- Studies using FBAs have better outcomes



FA = Intentionally Evoking Behavior

- A functional analysis may also be clinically indicated to determine function of behavior, in such a way where contingencies are set up to evoke the behavior in a **highly controlled and safe environment**
- Should only be done with careful thought, consultation, and training
- Risks of doing an FA increase with:
  - Age and size of client
  - Severity of behavior
  - High anxiety of caregivers or clinicians
  - Lack of training
  - Poorly controlled environment

Functional Analysis for Dangerous Behavior

- High-level clinician must have training in doing FA
- Submit proposal for FA
- Proposal should include how the environment is going to be controlled
- After approval from BHPN, conduct FA
- Based on results of FA, write a behavior intervention plan (BIP) that is consistent with the function of the behavior
- Implement behavior intervention plan

Blocking

Blocking is a method of inhibiting a behavior that is about to occur or is already in process

Blocking should only be used after reinforcement procedures have been exhausted with no to little change in behavior

Can be used in emergency situations when no other option is available

Blocking Risks

Risks for using blocking increase with:

- Age and size of the client
- Severity of behavior
- Probability of increasing the topography of the behavior (e.g., aggression towards blocker)
- When blocking triggers the fight or flight response

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Physical Restraint

- When all non-physical interventions have been tried to stop a dangerous behavior, physical restraints may be used under certain circumstances
- Risk with physical restraint increases with:
  - Age and size of client
  - Severity of behavior
  - High anxiety of caregivers or clinicians
  - Lack of training
  - Poorly controlled environment
- You must consult with the BHPN before incorporating physical restraint into a treatment plan
- As with blocking, restraint can be used in emergency situations

Alternative Data Collection

- Have parent record the dangerous behavior if possible
- Parent will send video of dangerous behavior to treatment team through a HIPAA-compliant platform
- High-level clinician will review video in order to make recommendations for treatment

FBAs 

- Functional Behavior Assessment – can lead to a hypothesized function of the identified behavior
- The FBA may include multiple components, one of which should be the direct observation of the target behavior
- ABC data collection should only last as long as it takes gather relevant information
  - ABC data should not be ongoing for a target behavior, but rather long enough to determine hypothesized function (3 data points is a trend)
  - After function is determined, BIP should be implemented based on function and at that point, continuous (e.g., rate, frequency, duration) or discontinuous (e.g., PIR, WIR), should be used

Do We Ever Make It Worse?

1

Don't create a protocol or plan that is so rigid that no one can follow it

2

Avoid asking clients to do things they don't have the abilities to do

3

Avoid triggering the fight or flight response

Comments and Questions