Mealtime Meltdowns: Behavioral Feeding Strategies

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Overview

- Definition
- Consequences
- Classification Systems
- Assessment Protocol
- Behavioral Interventions
- PBS Case Studies
Feeding Behavior Disorders defined

• Infant/child has difficulty establishing regular feeding patterns
• Emphasizes the interactions between child and caregiver

Chatoor, 2002
Classification Systems

• Organic versus nonorganic
• Mixed etiology

• Structural abnormalities
• Neurological conditions
• Behavioral issues
• Cardiorespiratory problems
• Metabolic syndromes

Kedesdy & Budd, 1998
Burklow et al., 1998
Classification Systems Continued

• Oral-medical
• Oral-behavioral
• Medical-behavioral
• Medical-oral-behavioral
• 80% had behavioral component

• Pica
• Rumination Disorder
• Avoidant/Restrictive Food Intake Disorder

Rommel et al., 2003

DSM-5, 2013
Biopsychosocial Model of Pediatric Feeding Problems

Berlin et al., 2009
Consequences- Short term

• Lethargy
• Decreased cognitive functioning
• Irritability
• Irregular sleep patterns
• Inability to dine out
• Inability to attend preschool
• Extreme family stress

Manikam & Ramasamy, 2000
Consequences - Long term

• Developmental delay
• Failure to thrive
• Growth retardation
• Susceptibility to illness
• Extreme family stress
• Risk for eating disorders
• Death

Manikam & Ramasamy, 2000
Assessment

• Interdisciplinary team
• Physical evaluation
• 24-hour dietary recall
• Feeding history
• Lab tests, X rays
• Family/Caregiver variables and resources

Silverman, 2010
## Assessment: Feeding Functional Behavior Interview

<table>
<thead>
<tr>
<th>Antecedent</th>
<th>Behavior</th>
<th>Consequences</th>
</tr>
</thead>
<tbody>
<tr>
<td>What happens before the behavior?</td>
<td>What are the behaviors?</td>
<td>How do others respond to the behavior?</td>
</tr>
</tbody>
</table>

**Function of behavior:**
Assessment: Behavioral Pediatrics
Feeding Assessment Scale (BPFAS)

• 35 items
• Can be administered via interview or self-completion by the caregiver(s)
• Frequency of both parent’s and child’s mealtime behaviors
  • E.g., child tries to negotiate
  • E.g., parent makes alternative foods
• Problem Score
Assessment: Food Inventory
BEHAVIORAL INTERVENTIONS: Evidence of effectiveness
Effective Interventions - Review of Literature

• Eligibility Criteria
  • Participants 0-18 years of age with feeding disorders
  • Published in peer reviewed journal between 1980-2010
  • Published in English
  • Psychosocial or behavioral intervention
  • Dependent variable was a measure of food intake (e.g., acceptance, swallowing, grams)

Sharp et al., 2010
Escape Extinction Procedures

• Most widely used intervention that targets avoidance of food

• Non-removal of spoon
  • Spoon is presented at mouth
  • If child expels the food it is represented
  • Ignore problem behaviors until acceptance
  • Praise contingent upon acceptance
  • Results in higher levels of corollary behaviors

• Physical redirection to table

Ahearn et al., 1996; Casey et al., 2006; Cooper et al., 1999; DeMoor et al., 2007; Gentry & Luiselli, 2008; Kerwin et al., 1995; Najdowski et al., 2010; Stark et al., 1996; Tarbox et al., 2010; Wood et al., 2009
Differential Reinforcement

• Presentation of preferred stimulus (food, activity, interaction, praise) contingent upon accepting a bite of target food
• Ignore all incompatible behaviors

Casey et al., 2006; Cooper et al., 1999; DeMoor et al., 2007; Greer et al., 1991; Hagopian, Farrell, & Amari, 1996; Stark et al., 1993, 1996; Tarbox et al., 2010,; Wood et al., 2009
Physical Guidance

• Tell the child you will help them if they do not self-feed
• If child does not self-initiate feeding, physically assist
  • Prompt to open mouth if bite was not initially accepted
  • “I’m going to help you now.”
• Present spoon
• Slight pressure on mandibular region
• Place spoon in mouth
• Represent food if its expelled

Ahearn et al., 1996; DeMoor et al., 2007; Kerwin et al., 1995
Stimulus control/Antecedent manipulation

- Mealtime factors
  - All meals at the table, free from distractions
  - Predictable mealtime schedule (limit duration of mealtime)
  - Smaller bites or lower textures of food

- Appetite manipulation
  - Decrease in supplemental feedings
  - Evaluate milk consumption
  - Eliminate eating between meals
  - Allow child to “fail” a meal (natural consequence of increased hunger)

DeMoor et al., 2007; Gentry & Luiselli, 2008; Linscheid, 2006; Najdowski et al., 2010; Silverman, 2010; Williams & Fox, 2007
Gradual Exposure/Desensitization

• Gradual and repeated presentation of non-preferred/new food
  • Play and distract child while seated to desensitize the feeding environment
  • Start with empty spoon, followed by spoon dipped in food, ¼ spoonful, ½ spoonful, and so on
  • Pair with positive or negative reinforcers
  • Ignore inappropriate behaviors

Williams & Fox, 2007
Other Intervention Strategies

• Modeling

• Backwards chaining
  • Teach feeding skills one at a time, starting from the last response (e.g., placing spoon in mouth)
  • Allows a child to experience instant success

• Mixing/pairing preferred and non-preferred/new foods
  • Peas/carrots (new food) in rice (preferred)
  • Gradually increase amount of target food and decrease the amount of preferred food

Williams & Fox, 2007
Questions prior to Behavioral Intervention

• Is feeding intervention medically necessary at this time?
• Are the caregivers receptive to environmental intervention at the present time?
• Are resources available for intervention to have a reasonable chance of success?
Getting Families Ready for Intervention

• Caregiver motivation is important, because consistent implementation of strategies is key!
• Remember to take a coaching approach
• The caregiver-child dynamics and routines outside of mealtimes are often relevant
Resistance to Change

• Why do we encounter so much resistance?
  • Caregivers fix behavior problems in the moment
    • Sleeping, eating, tantrums
• We continue with what is comfortable
  • Faster bedtime routine if we lay with them
• Recognition or acknowledgement of the problem and contributing factors
  • Family and cultural differences
• ‘Extinction bursts’ are often misunderstood or too hard to get through
• Confusion between caregivers about what to do or when to apply what they have learned
  • Generalization is difficult
Coaching Strategies

- Direct Modeling
  - Coach models while parent observes immediately followed by reflection of the parent

- Verbal Support and Prompts
  - Coach provides verbal cues and prompts while the parent directly engages with the child

- Coach Observes (Reflection on Action)
  - Coach observes the parent but withholds questions or feedback until a set point in the activity (delayed direct feedback)

 ✓ Over time, the goal is to move from Direct Modeling to Coach Observes to promote the parent’s role
Goals of Behavioral Feeding Intervention

• Positive Behavior Support approach
  • Person-centered planning
  • Wraparound approach
  • Improving quality of life
  • Inclusion in community
  • Self-determination
  • Understand function of behavior
  • Teach replacement skills
  • Know the strengths, needs, preferences of individual with challenging behavior

Carr et al., 2002
Case Study 1: Buggy
Family’s Area of Concern

• He will not eat anything
• He only takes a bottle with formula
• He will lick some foods
Resources

• Buggy was:
  • 20 months
  • smart
  • well-behaved
  • very mellow
  • happy go lucky
Developmental Evaluation

• Unremarkable:
  • Medical history
  • Social history
  • Developmental history
  • Physical growth

• Exceptions:
  • Feeding
Medical Concerns

- Physiological Concerns ruled out
- Swallow test
- Oral-motor evaluation
Developmental Evaluation

<table>
<thead>
<tr>
<th>DAYC SUBTEST</th>
<th>AGE EQUIVALENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognition</td>
<td>19</td>
</tr>
<tr>
<td>Communication</td>
<td>17</td>
</tr>
<tr>
<td>Social-emotional</td>
<td>21</td>
</tr>
<tr>
<td>Physical Development</td>
<td>24</td>
</tr>
<tr>
<td>Adaptive Behavior</td>
<td>13*</td>
</tr>
</tbody>
</table>

*25% delay

DAYC scores at 20 months
<table>
<thead>
<tr>
<th>MSEL Subtest</th>
<th>Age Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Motor</td>
<td>22 months</td>
</tr>
<tr>
<td>Visual Reception</td>
<td>19 months</td>
</tr>
<tr>
<td>Fine Motor</td>
<td>20 months</td>
</tr>
<tr>
<td>Receptive Language</td>
<td>20 months</td>
</tr>
<tr>
<td>Expressive Language</td>
<td>20 months</td>
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Mullen Scale of Early Learning at 20 months
Behavioral Approach - Data Collection

• Functional Assessment Interview
• Child Behavior Checklist (CBCL)
• Mealtime Logs
• Mealtime Behavior in the Chair
• Observations
Functional Assessment Results

- Buggy gets attention when he cries for the bottle
- Few opportunities to eat food, bottle always offered first
- No words to communicate hunger
- No use of high chair
- Parents lack consistent eating routines
- Buggy lacks a consistent eating routine
- Buggy lacks a consistent sleep routine
- Buggy does not have his own bed
## Functional Assessment Results

<table>
<thead>
<tr>
<th>Antecedent</th>
<th>Behavior</th>
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<tbody>
<tr>
<td>Few opportunities to eat food, bottle always offered first. No use of high chair, bottle provided in any room. No consistent eating routine in house, bottle offered throughout the day.</td>
<td>He refuses foods. He drinks a bottle with formula. He will lick some foods. He cries.</td>
<td>Mom and Dad talk to Buggy, try to reason with him. Mom or Dad goes to the fridge to get a bottle for Buggy.</td>
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Function?
To GET or GET OUT OF

Other pertinent information- there is no consistent sleeping routine at home. Buggy does not sleep in his own bed.
Possible Functions of the Behavior

• When Buggy is hungry, he whines and/or leads parent to refrigerator. Gets bottle, often with cuddling. Function is gets bottle and attention.

• When Buggy is hungry, and Mom presents food (chip), he sucks it until it falls on floor, whines, and leads Mom to refrigerator. He avoids food, gets bottle & gets attention.

• When Buggy is tired, he whines. Gets bottle and cuddling.

• When Buggy wakes up during night, he whines, gets bottle and cuddling.
Mealtime Logs

Number of Feedings per Day

Date


Number of Feedings

Bottles

Food
Tantrum and Bottle Video
## Prevention Strategies

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**Function?**
To Get Bottle & Attention

<table>
<thead>
<tr>
<th>Preventions</th>
<th>New Skills</th>
<th>Teaching Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="at.png" alt="At Symbol" /></td>
<td><img src="new_skills.png" alt="New Skills Icon" /></td>
<td><img src="teaching_strategies.png" alt="Teaching Strategies Icon" /></td>
</tr>
</tbody>
</table>
Ideas for Prevention

- When and where eating will occur:
  - Scheduled mealtimes
  - Establish mealtime routine
  - Comfortable high chair
  - Use a timer
My High Chair Video
Ideas for Prevention

• What will be offered:
  • Choice between foods
  • Foods Mom likes
  • Finger foods-dipping foods
  • Drinks after food
Modeling Choices Video
Ideas for Prevention

• How Mealtimes Occur:
  • Parents present
  • Positive attention
  • No distractions
  • Special spoon and bowl
  • Least to most prompting
Let’s Chew Food Video
## New Skills and Teaching Strategies

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<td>No consistent eating routine in house, bottle offered throughout the day.</td>
<td>He will lick some foods.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>He cries.</td>
<td></td>
</tr>
</tbody>
</table>

**Function?**
To Get Bottle & Attention

## Preventions

- **Structural:**
  - When and where mealtimes will occur
  - What will be offered
- **Interactional:**
  - How mealtimes will occur
  - Social story for mealtime

## New Skills

- Buggy will eat solid food
- Buggy will feed himself with a utensil.
- Buggy will only drink from a sippy cup or open cup
- Buggy will say ‘all done’ when he is full.

## Teaching Strategies

- Praise
- Reinforcement delivered instantly and often to encourage new skills
- Follow successful feeding with highly preferred activity/attention
Intervention: January 29, 2005

- Buggy was 24 months old
- The bottle was eliminated
- Choice of food presented (baby foods)
- Choice of water, milk, or juice
Week 1 Data: Breakfast

1/29-2/6

0 = Eats well
1 = Whines, resisted but eats
2 = Whines a lot, eats
3 = Whines, doesn't eat
4 = Eats, but vomits
Week 1 Data: Snack

- 0 = Eats well
- 1 = Whines, resisted but eats
- 2 = Whines a lot, eats
- 3 = Whines, doesn't eat
- 4 = Eats, but vomits
Week 1 Data: Lunch

0 = Eats well
1 = Whines, resisted but eats
2 = Whines a lot, eats
3 = Whines, doesn't eat
4 = Eats, but vomits
Week 1 Data: PM Snack

0 = Eats well
1 = Whines, resisted but eats
2 = Whines a lot, eats
3 = Whines, doesn't eat
4 = Eats, but vomits
Week 1 Data: Dinner

0 = Eats well
1 = Whines, resisted but eats
2 = Whines a lot, eats
3 = Whines, doesn't eat
4 = Eats, but vomits
Summary

• At 27 months of age, Buggy was eating:
  • Soups, ice cream, yogurt, baby foods, milk, water, milk shakes, and dips (i.e. peanut butter, pudding, salsa)
  • He is chewing solids, but not swallowing
• Buggy had a sleep routine too!
Case Study 2: Maya
Family’s Area of Concern

• Vomiting (2-3 times a day)
• G tube dependent-Not swallowing enough liquids or foods
Resources

• Maya was:
  • a 16 month old girl
  • smart
  • well-behaved
  • social
  • happy
  • close with her mother
Developmental Evaluation

• Remarkable:
  • Medical history
  • Social history
  • Developmental history
  • Physical growth
  • Feeding difficulties
Medical History

• 30 week gestation 4 lb 6.8 oz and lost to 3 lb 7 oz
• Cesarean section secondary to hydrops fetalis
• PDA in NICU (litigated) and supraventricular tachyarrhythmias
• Chronic lung disease with bronchopulmonary dysplasia
• Ventilator for 50 days
• Oxygen dependent
• Home apnea bradycardia monitor and pulse oximeter
• GER (Reflux)
Current Medical Concerns

• Reflux
• Swallow study
• Oral-motor evaluation
• Neurological evaluation
Eligibility Evaluation

<table>
<thead>
<tr>
<th>DAYC SUBTESTs</th>
<th>AGE EQUIVALENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognition</td>
<td>4m</td>
</tr>
<tr>
<td>Communication</td>
<td>3m</td>
</tr>
<tr>
<td>Social-emotional</td>
<td>4m</td>
</tr>
<tr>
<td>Gross Motor/Fine</td>
<td>1m/5m</td>
</tr>
<tr>
<td>Self-Help</td>
<td>2m</td>
</tr>
</tbody>
</table>

8 months (5.5 adjusted age)
# Developmental Evaluation - Update

<table>
<thead>
<tr>
<th>HELP SUBTESTs</th>
<th>AGE EQUIVALENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognition</td>
<td>10m</td>
</tr>
<tr>
<td>Communication</td>
<td>10m</td>
</tr>
<tr>
<td>Social-emotional</td>
<td>12m</td>
</tr>
<tr>
<td>Physical Development</td>
<td>10m</td>
</tr>
<tr>
<td>Adaptive Behavior</td>
<td>7</td>
</tr>
</tbody>
</table>

14 months (11.5 adjusted age)
Physical Measurements

- History of failure to thrive
- 25th % for weight at 14 months
Positive Behavior Approach-Data Collection

- Early Steps evaluation data
- Functional Assessment Interview
- Mealtime logs
- Mealtime behavior in the chair
- Observations
Functional Assessment Results

• Maya escapes eating/drinking when she vomits
• Maya delays eating/drinking when she engages in refusal behavior (crying, moving head, arching back, etc)
• Eating occurred all over house
• Eating was not a part of family eating routines
• No consistent sleep routine
Hypotheses for Maya

• When Maya does not want to eat she arches, cries, refuses to open her mouth, vomits. Ultimately food is administered through G tube.

• When Maya is tired, she cries in the crib. Mom or Dad take her out of crib and hold her.
Data collection- Mealtime logs

• Mealtime logs for each meal and snack
• Monitor amount consumed
• Use of g-tube
• Behavior
Mealtime Logs

Breakfast June 2005

Day

CC

Food

Formula

G-tube

Water

Milkshake
Mealtime Logs

Snack 2 June 2005

CC

Day

Food
Formula
G-tube
Water
Milkshake
Mealtime Logs

Snack 3 June 2005

Day
CC
Food
Formula
G-tube
Water
Milkshake

Day
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29

Food
Formula
G-tube
Water
Milkshake
Behavior Log

Behavior June 2005

Times per Day

Day

Vomits

Wakes up
Support Plan Meeting - May 2005

• Mother, father, speech therapist, Heather Curtiss
• Discussion of goals, progress to date, support plan for goals
## Behavior Chart: Problems and Solutions

<table>
<thead>
<tr>
<th>Triggers</th>
<th>Behavior</th>
<th>Consequences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maya is presented with food or liquid</td>
<td>Whines</td>
<td>Adult offers food</td>
</tr>
<tr>
<td></td>
<td>Arches</td>
<td>Adult provides attention</td>
</tr>
<tr>
<td></td>
<td>Tastes food with tongue</td>
<td>Adult provides food through G tube</td>
</tr>
<tr>
<td></td>
<td>Gags on Food</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vomits food</td>
<td></td>
</tr>
</tbody>
</table>

**Function?**

Get or Get Out Of

<table>
<thead>
<tr>
<th>Preventions</th>
<th>New Skills</th>
<th>New Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prompt to say “eat”</td>
<td>Drinks formula</td>
<td>Praise</td>
</tr>
<tr>
<td>Show schedule of mealtimes and let her move magnet</td>
<td>Tastes foods</td>
<td>Reinforcement delivered instantly and often to encourage new skills</td>
</tr>
<tr>
<td>Institute meal &amp; snack routine</td>
<td>Eats solid foods</td>
<td>Follow successful feeding with highly preferred activity/attention</td>
</tr>
<tr>
<td>Feed in high chair only</td>
<td>Uses a spoon and fork</td>
<td></td>
</tr>
<tr>
<td>Use Timer</td>
<td>Drinks from a cup</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Says “all done” when full</td>
<td></td>
</tr>
</tbody>
</table>

**First:** Identify Problem

**Then:** Develop Solutions
Ideas for Prevention

- When and where eating will occur:
  - Scheduled mealtimes
  - Establish mealtime routine
  - Comfortable high chair
  - Use a timer
Ideas for Prevention

• What will be offered:
  • First 5 minutes
    • Choice between foods
    • Foods Mom likes
    • Finger foods
  • Next 10 minutes feed her baby foods
  • Last 5-10 minutes formula is presented
Ideas for Prevention

• How Mealtimes Occur:
  • Parents Present
  • Positive Attention
  • No Distractions
  • Special Spoon and Bowl
  • Least to Most Prompting
Preventions Continued

• Timer
• Social Stories
  • Maya likes to eat
• Visual Supports
  • First Chew/Then Swallow
  • First Eat/Then Play
Preventions
Maya Likes to Eat

Created for Maya by Heather Curtiss
It is time to eat.

My tummy tells me I am hungry.
Mommy helps me get into my highchair.
Sometimes Daddy helps me get into my highchair.
When I am in my highchair, I eat food.

When I am in my highchair, I drink from a straw.
Sometimes I can eat with my fingers.

I can eat watermelon with my fingers.
Sometimes I eat green beans.

I can drink yogurt from a bottle.
I chew my food with my teeth.

Food is yummy.
I like to chew my food.
When I want more, I say, “More please.”

Then Mommy gives me more.
When I am thirsty, I say “drink please”.

I like to drink from a cup or a glass. Sometimes I drink milk. Sometimes I drink milkshakes.
When I want more milk, I say “more milk, please”.

When I want more milkshake, I say “more milkshake please”.
When my tummy is full, I say “all done”. Then, I wipe my mouth with a napkin.

Now I can get down and play.
Mommy likes it when I eat.
Daddy likes it when I eat.
I like to eat. I am a big girl now.
First CHEW

Then SWALLOW

ALL GONE
FIRST EAT

THEN PLAY
Intervention strategies

• Choice of food presented (baby foods)
• Choice of water, milk, milkshake, formula or juice
• Ignore inappropriate behavior
• Redirect to mealtime behaviors
• Remaining calories through G-tube
Early Progress and Focus

• Very slow
• Initial focus on drinking
• Infant eating status
• Continue to offer foods
• Main goal to eliminate use of G tube
• Maximize medications for reflux (Reglan and Zantac)
Mealtime Logs

Breakfast
December 2005

CC

Day

Food
Formula
G-tube
Water
Milkshake

0 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31
Mealtime Logs

Snack 1
December 2005

Amount in CC

Day

Food
Formula
G-tube
Water
Milkshake
Mealtime Logs

Lunch
December 2005

Day
CC
Food
Formula
G-tube
Water
Milkshake

Diagram showing the consumption of different types of food over the days of December 2005.
Mealtime Logs

Snack 2
December 2005

Day
CC
Food
Formula
G-tube
Water
Milkshake
Mealtime Logs

Snack 3
December 2005

CC

Day

Food
Formula
G-tube
Water
Milkshake
Behavior

December

Times per Day

Day

Vomits

0 1 2 3 4

0 1 2 3 4

1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31
December Progress Check

• Consuming most calories orally
• Gaining weight
• Sleeping no longer a problem
• Continues to vomit frequently
• Vomiting associated with forced feeding
• Discontinue forced feeding with baby foods and only present finger foods for first 10 minutes
Current Status

• Orally consuming a variety of foods
• About 3-6 tsp. per meal
• Does not want to drink formula
• Mom administers through tube at night
Questions?

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• Sim Yin Tan
  • simyintan@health.usf.edu