



Pica: Critical Information and Practical Strategies for Parents and Service Providers

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December 2015
Webinar

Rochester Regional Center for Autism Spectrum Disorder



House Keeping

- To reduce background noise during the webinar, please put yourself on 'mute' through your phone or computer.
- Due to the size of our group, I will not be answering questions during the webinar. Instead, **please type in your questions** into the 'chat' box on your screen. I will review/answer all questions at the end.
- If you experience any technical problems at any point during the webinar, the problem is likely to be on your end, so you will need to follow-up with your technology support person.
- The Webinar will end promptly at 4:30. If you would like to speak with me after the webinar, please e-mail me at rrcasd@urmc.rochester.edu to set up a time to speak by phone.

2

Learning Objectives

- Increase understanding of...
 - Risks associated with pica
 - Why persons with developmental disabilities engage in pica
 - The behavioral assessment of pica
 - Interventions for pica that can be implemented by parents and service providers

History of Pica

- The term pica comes from the Latin “picus” after the Magpie a bird famous for having an indiscriminate appetite
- Reports of pica date to 16th and 17th century Greek and Roman cultures
- Historical explanations include: tight-corseting, sexual frustration, and a folk medical practice to lighten one’s skin tone

See: Parry-Jones and Parry-Jones (1992) for a historical description of pica

4

Definitions of Pica in Peer-Reviewed Publications

- Eating of non-nutritive substances (Foxy & Martin, 1975).
- Piazza et al. (2002) defined pica as placing a pica item past the plane of the lips.
- Pica was defined as an occurrence or blocked attempt to place an inedible item or any simulated pica item past the plane of the lips (hand mouthing, mouthing of clothing, and mouthing of competing stimuli were excluded; Hagopian, Gonzalez, Rivet, Triggs, & Clark, 2011).

5

Diagnostic Criteria for Pica

- Eating one or more non-nutritive substances on a persistent basis for a period of at least one month
- Pica must be developmentally inappropriate practice (>18 months of age)
- Not part of a culturally sanctioned practice
- If an individual has a diagnosed mental disorder (e.g., schizophrenia), pica may only be concurrently diagnosed if it is sufficiently severe to warrant independent clinical attention
- Upper age limit recently discontinued in DSM-V (18-year-of-age).

6

Pica Items Reported in the Literature

- Paper
- Inedible plants/leaves
- Dirt
- Sand
- Clay
- Large amounts of ice
- Rock salt
- Glass
- Coins
- Gloves
- Plastic items
- Shampoo
- Cigarette butts
- Elastic

Does the topography of pica matter?

7

Does the topography of pica matter?

- May suggest a nutritional deficiency (i.e., large amounts of ice, Coprophagia)
- Immediacy of need for the implementation of preventative strategies (safety checks, environmental sweeps)
- Targeted items suggest potentially important medical consultations (e.g., medical evaluation for intestinal blockage)
- Potential restrictiveness of behavioral interventions (e.g., need to conduct an assessment of potentially restrictive punishment-based strategies)

8

Possible Medical Side Effects of Pica

- Elevated lead levels
- Excessive tooth wear
- GI Complications such as constipation, ulcerations, perforations, diarrhea,, and bowel obstruction
- Parasites
- Nutrient malabsorption
- Surgery
- Death

9

Theories of Pica

- Behavioral Hypothesis
- Nutritional/Medical Hypothesis
- Cultural Practices

Listed in order of importance from a clinical behavior-analytic perspective

10

Behavioral Hypothesis

- According to a behavior-analytic model, pica is a learned behavior which can be explained in terms reinforcement, stimulus control, punishment, and learning history (Mace & Wacker, 1994; Progar et al., 2001; Wacker, 2000).
- Some behavior analysts have conceptualized pica as stimulus-control problem. That is, persons with intellectual disabilities engage in pica because they do not discriminate edible from non-edible items. The *discrimination hypothesis* is supported by studies that demonstrate that teaching persons to discriminate edible from non-edible items reduces pica (Finney, Russo, & Cataldo, 1982).

11

Behavioral Hypothesis, cont

- The only evidence for *social positive reinforcement* (e.g., social attention from other people; access to high-preference items or activities) or *social negative reinforcement* (i.e., escape or avoidance behavior) comes from early studies published prior to the development of contemporary functional assessment and functional analysis methods
- Several recent published descriptive and meta-analytic reviews have concluded that pica is maintained exclusively by *automatic reinforcement* based on the results of the recent peer-reviewed literature

12

Nutritional/Medical Hypothesis

- According to the *nutritional hypothesis*, pica is related to a person's nutritional status and deficiencies (e.g., iron, zinc)
- The nutritional hypothesis is supported by multiple studies that demonstrate that nutritional supplementation reduces the pica of some people successfully
- Studies of brain structure and function demonstrate an association between damage to specific brain areas and pica in people/animals (elderly people with dementia).

13

Cultural Practices

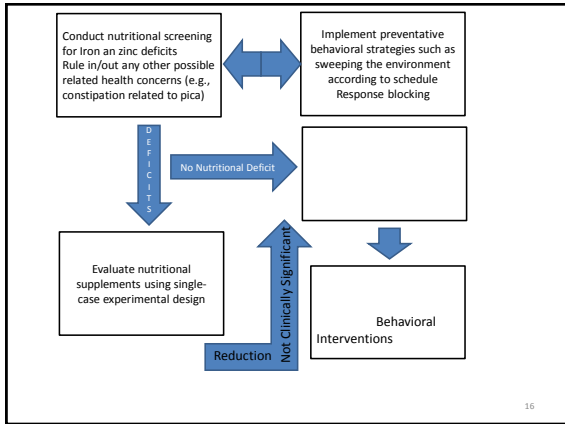
- Although clinical reports focus on undesirable behavior in Western settings, pica occurs in commercial, medical, and cultural contexts across the world (Stiegler, 2005).
- Consumption of clay (geophagia) often augments procedures used for folk medicine.
 - Blends of soil sold by street vendors in Uganda are described as having unique curative powers (Geissler et al., 1999).
 - Clay may be consumed to treat diarrhea and intestinal discomfort and, due to its ability to absorb dietary toxins and reduce hunger, may be added to specific meals (e.g., fish) and to a pregnancy diet.
 - More common in females than males (Stiegler, 2005), geophagia is part of cultural practices related to pregnancy, child bearing, and breastfeeding (McKenna, 2006).

14

Behavioral Treatment Model of Pica: Current Status of the Published Literature

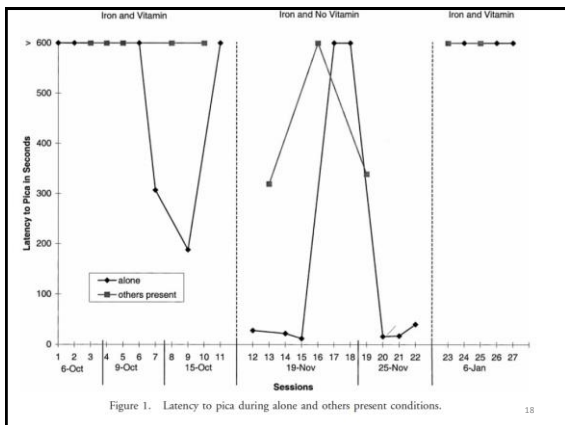
What is Evidence-based Behavioral Practice?

15



Nutrition Treatment: Pace and Toyer, 2000

- Participant: The participant was a 9-year 5-month-old girl who had been diagnosed with severe mental retardation, iron deficiency, and anemia.
- Intervention: Vitamin and iron supplements



Nutritional/Medical Variables

Pica



A Guide for Professionals

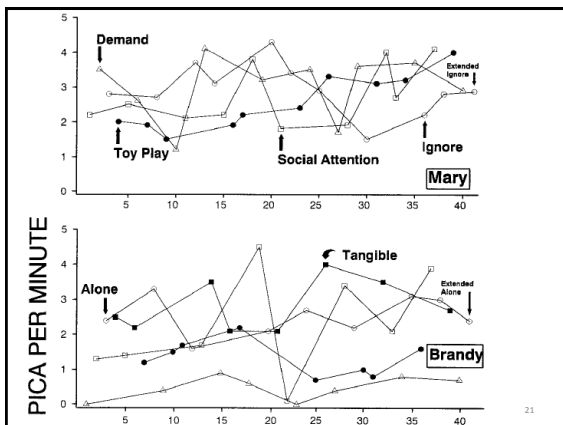
<https://www.autismspeaks.org/.../new-pica-tool-kits-autism...>

19

Assessment of pica

- Analogue functional analysis is gold standard
- Indirect measure such as QABF may result in false positive results (particularly for social attention)
- Consider use of response latency as dependent measure to reduce opportunities to engage in pica
- Consider baiting environment with items safe to ingest (small pieces of paper, uncooked pasta, pasta cooked to a consistency of a rubber band). *Caution – may want to consult with a medical professional and NEVER conduct an assessment of unsafe items consumed without all the proper approvals and medical consultation.*
- Potential covert nature of pica

20



21

Preventative Strategies

22

Pica Sweep Data Sheet

Date: Scheduled Check Time:	Area	Potential Pica Items	Action Taken	Staff Followed- Up	Staff Initial
	Cabinets	Yes <input type="checkbox"/> No <input type="checkbox"/>			
	Counters	Yes <input type="checkbox"/> No <input type="checkbox"/>			
	Tables	Yes <input type="checkbox"/> No <input type="checkbox"/>			
	Floors	Yes <input type="checkbox"/> No <input type="checkbox"/>			
	Bathroom	Yes <input type="checkbox"/> No <input type="checkbox"/>			

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Based on data collection procedure from the Springbrook Agency in Oneonta, NY. 23

Evidence-based Interventions for Pica (Least to most restrictiveness hierarchy)

1. Environmental Enrichment/Non-contingent reinforcement
2. Differential reinforcement
3. Discrimination Training
4. Response blocking
5. Punishment-based intervention packages (physical restraint, overcorrection, contingent aversive presentations)

See McAdam et al. 2012 for meta-analysis

24

McCord, B. E., Grosser, J. W., Iwata,
B. A., & Powers, L. A. (2005)

Response Blocking

25

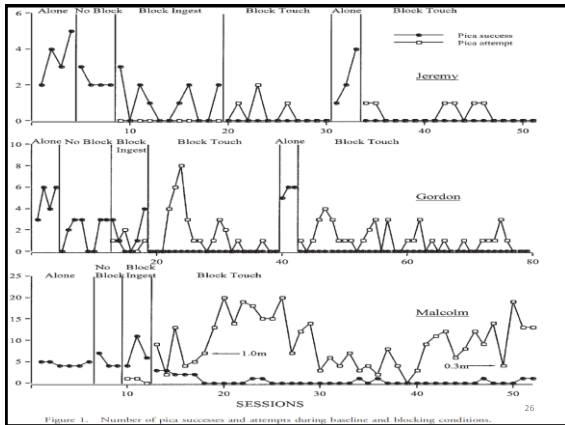


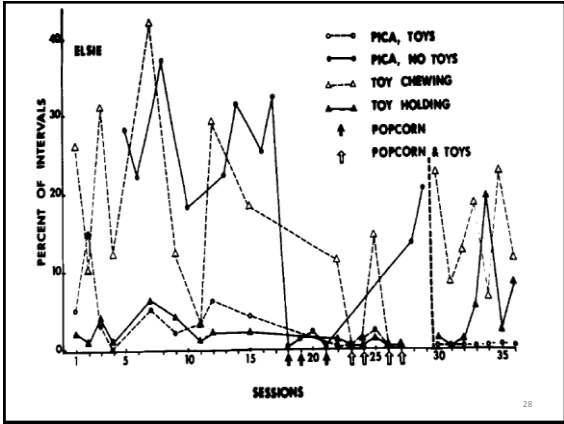
Figure 1. Number of pica successes and attempts during baseline and blocking conditions.

25

Favell, McGimsey, & Schell, 1982

Environmental Enrichment/Non-
Contingent Reinforcement/Competing
items

27



Hagopian et al. 2011

Differential Reinforcement

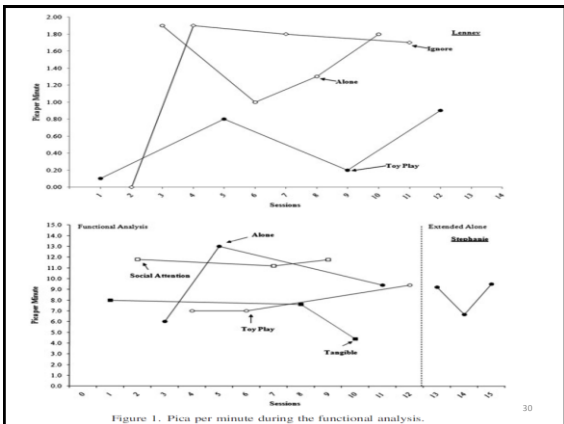
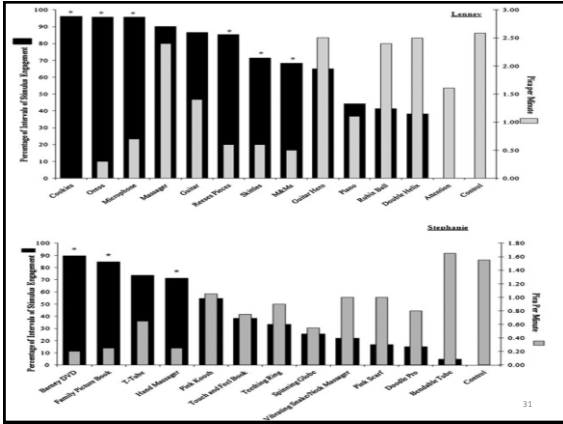
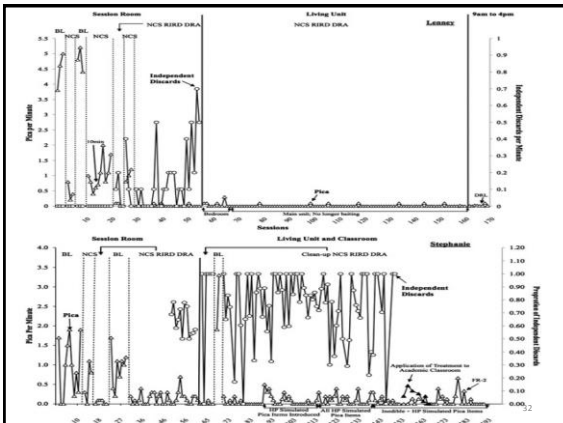


Figure 1. Pica per minute during the functional analysis.





Ferreri, Tamm, & Wier, (2006)

Punishment-based Strategies

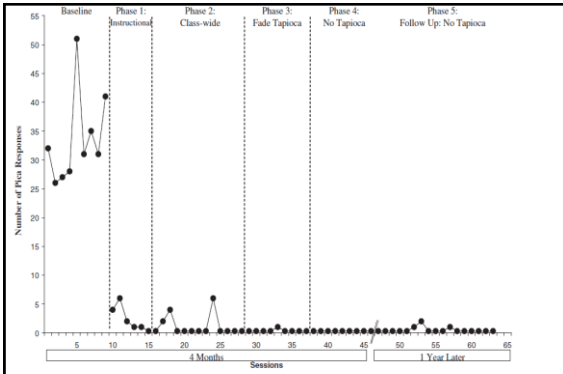


Figure 1. The number of pica responses during baseline, intervention, and follow-up.

Pica

A Guide for Parents

<https://www.autismspeaks.org/.../new-pica-tool-kits-autism...>

Questions, Discussion, and Problem Solving
 Contact information:
 David_Mcadam@urmc.rochester.edu

Resources

- Rochester Regional Center for Autism Spectrum Disorder (RRCASD).
 - On-line educational resources, webinars, Information & Referral services.
 - Contact information:
 - Website: www.golisano.urmc.edu/rrcasd-nyautism
 - E-mail: rrcasd@urmc.rochester.edu
 - Tele: 1-855-508-8485
- Autism Speaks: website: www.autismspeaks.org
 - This site contains various toolkits and guides for home, school, work, safety, health/medical, etc.

37
