Examining the sensory characteristics of preschool children with retentive fecal incontinence

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Retentive Fecal Incontinence

- Soiling associated with constipation.
- Involuntary.
- Soft stool from the bowel slips around a hard mass of stool in rectum.
- One of the most common gastrointestinal complaints in toddlers.

(Cohn, 2011)

The cause of RFI has not been clearly identified

- Behavior seems to be partly responsible for the development and/or maintenance of the condition.
Behaviors related to RFI

• “if she’d just follow protocol and do what she’s suppose to do”

(Kaugars et al., 2010)

Stool withholding

• Avoidance of painful bowel movement

(Cohn, 2011; Tabbers et al., 2011; Borowitz et al., 2003)

• Avoidance of using a toilet outside the home

(Inan et al., 2007; Kistner, 2009; Lundblad & Hellström, 2005; Tam et al., 2012).
Refusal to follow treatment recommendations

- Diet and fluid intake
- Medication
- Toileting routines

(Cohn, 2011; Taubman & Buzby, 1997; Vitito, 2000)

Stool toileting refusal or fear of sitting on the potty

- May accept potty to pass urine but will refuse to use it for defecation.

(Bellman, 1966; Taubman, 1997; Taubman, Blum, & Nemeth, 2003; Blum, Taubman, & Nemeth 2004).
What’s behind so much refusing and avoiding?

- Sensory over-responsivity?
  - Refusal to comply with parental demands.
  - Atypical habits in other types of selfcare activities such as dressing or feeding.

(Cermak, Curtin, & Bandini, 2010; Chatoor, 2002; Dunn, 2007; Hazen et al., 2008; Nadon, Ehrmann-Feldman, Dunn, & Gisel, 2011; Schaaf et al., 2010)

A different perspective on the behavior of children with RFI

- What are the **underlying issues** related to the behavior problems associated with constipation and RFI?
- Development of more effective treatment programs.
What do we know about constipation and retentive fecal incontinence in children?

• Pathophysiology is recognized to be multifactorial and remains incompletely understood. (Mugie, Di Lorenzo, & Benninga, 2011)

Organic Causes

• In most cases no clear organic cause.
• Constipation and RFI are therefore said to be functional. (Canadian Pediatric Society, 2011; Rubin, 2006; Tabbers et al., 2010)

• Gastrointestinal abnormalities
• Anorectal sensorimotor issues
• Reduced colonic transit time
• Diet
• Food allergies
• Genetics
• Sensory responsivity
## Non Organic Causes and Links

### Behavior

A long standing issue of study.

- More behavioral problems than typically developing children.
  
  (Bellman, 1966; Cox, Morris, Borowitz, & Sutphen, 2002; Benninga et al., 2004; Gabel et al. 1999; Gontard et al., 2011; Hesapciolu, et al., 2009; Joinson et al., 2006; Djik, Benninga, Grootenhuis, & Last, 2010; Young et al., 1995)

### Non Organic Causes and Links

<table>
<thead>
<tr>
<th>Problems during toilet training</th>
<th>Psychosocial and emotional factors</th>
<th>Demographic features</th>
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<tr>
<td>(Blum, Taubman, &amp; Nemeth, 2003; Borowitz, et al, 2003; Rugolotto, Sun, Bouke, Caló, &amp; Tató, 2008)</td>
<td>(Devanarayana &amp; Rajindrajith, 2011; Drossman, 2006; Culbert &amp; Banez, 2007; Mugie, Di Lorenzo, &amp; Benninga, 2011; Berg, Benninga, &amp; Di Lorenzo, 2006)</td>
<td>(Bytzer et al., 2001; Chung et al., 2010; Devanarayana &amp; Rajindrajith, 2011; Mugie, Benninga, &amp; Di Lorenzo, 2011; Tam et al., 2012; Whitehead et al., 2009; Van den Berg et al., 2006).</td>
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Diagnostic Criteria: Constipation (>4 years old)

**The ROME III Criteria**

- ≤ 2 defecations in the toilet per week
- ≥ 1 episode of FI per week
- History of:
  - retentive posturing or excessive stool retention
  - painful or hard bowel movements
  - large diameter stools
- Presence of a large fecal mass in the rectum

Criteria fulfilled at least once per week for at least 2 months prior to diagnosis.
(Drossman et al., 2006, p. 897).

Diagnostic Criteria: Constipation (<4 years old)

**The ROME III Criteria**

- ≤ 2 defecations per week
- ≥ 1 episode per week of FI after acquisition of toileting skills
- History of:
  - excessive stool retention
  - painful or hard bowel movements
  - large diameter stools
- Presence of a large fecal mass in the rectum

Symptoms may also include irritability, decreased appetite, and/or early satiety which disappear immediately following passage of a large stool.
(Drossman et al., 2006, p. 895)
Conventional medical treatment

The most recommended and supported by current evidence.
(Brazzelli, Griffiths, Cody, Tappin, 2011; Tabbers, Boluyt, Berger, & Benninga, 2011b)

1) education on constipation and RFI
2) disimpaction of feces
3) prevention of re-accumulation
4) non-punitive attitude including basic behavioral strategies

(North American Society for Pediatric Gastroenterology, Hepatology and Nutrition, 2006; 2014)

Conventional medical treatment

Follow-up studies:
• 25% to 50% do not respond
• many continue to have difficulties into adulthood

(Bongers, Van Wijk, Reitsma, Benninga 2010; Van Ginkel et al., 2003; Michaud, et al., 2009; Pijper et al., 2010; Procter & Loader, 2003; Staiano, Andreotti, Greco, Basile, & Auricchio, 1994).
Occupational Therapy in the Treatment of Retentive Fecal Incontinence

- The Pondering Poos Treatment Program (Collis, Norton, & Wallace, 2007).
- A Multi-disciplinary School Based Treatment Program (Handley-More, Richards, Macauley, & Tierra, 2009).
- The Happy Potty Treatment Program (Beaudry, Schaaf, & Ramos, 2013; Beaudry Bellefeuille & Ramos Polo, 2011).

Reflections on the Management of Children with RFI in OT

- To develop more efficacious diagnostic procedures and treatment programs we need:
  - Screening tools for sensory based toileting difficulties.
  - Knowledge of the sensory processing characteristics of children with RFI.
Purpose of the Study

• Investigate the relationship between RFI and sensory over-responsivity.

• Examine the Toileting Habit Profile Questionnaire:
  – Sensory based toileting issues.
  – Distinguish between the behaviors of typical children and those with RFI.

Tools

Short Sensory Profile:
Discriminates between children with sensory modulation disorder and typically developing children (McIntosh, Miller, Shyu, & Dunn, 1999).

Toileting Habit Profile Questionnaire:
Explores what can be considered normal toileting behaviors and normal reactions to defecation.
First phase of the study

Establishing validity of the tools.

Validity of the Spanish version of the SSP for Spain.

- **Cognitive interview** process described by Roman-Oyola and Reynolds (2010) for Puerto Rico.

- 8 caregivers of children aged 3 to 5 years recruited from my clinic.

- Diverse socio-economic representation.
Probe questions

• 1) How do you interpret what the item is asking?
• 2) What are some examples of your child’s behavior that made you choose that answer?
• 3) What changes, if any, would you make to the item to improve its understanding?

(Roman-Oyala & Reynolds, 2010, p.200)

Results Validation SSP-S (R-Spain)

• 34 of the 38 items correctly understood and interpreted by all.
• 2 items underwent a second round of consultation as the structure of the statements changed substantially.
• 1 item revised for cultural issues.
• Several minor changes were made reflecting suggestions made by parents and the linguistic consultant.
• Revised version: 25 items have been modified and 13 items have remained completely unchanged.
Toileting Habit Profile Questionnaire

Establishing validity
Bilingual Expert Panel

3 experts in RFI: Physicians from private practice, university and public hospitals.

3 experts in ASI®: SIPT certified OTs with experience in pediatric toileting issues.

Questions for expert panel for each of the items of the THPQ

1) How do you interpret what the item is asking?
2) Why do you think a child would have such a behavior?
3) Do you think that typically developing children have this behavior?
4) Do you think that this behavior is common in children with constipation and fecal incontinence?
5) Do you think that this behavior could be related to over-responsivity to the sensations related to defecation (feel of potty/toilet on skin; anal/rectal distention; smell of feces, etc.)?
**Probe question 1:**
*How do you interpret what the item is asking?*

- Interpreted as intended by only one expert.
- One expert systematically left this question blank.
- The remaining experts proposed reasons for the behaviors described by the items, a response expected in the second question.

**Probe question 2:**
*Why do you think a child would have such a behavior?*

- Experts responded with more than one rationale.
- For each item, responses were grouped into categories based on the wording and general idea transmitted by the statements from the experts.
- 90.9% of the items obtained at least 66.7% agreement on one of the factors considered to contribute to the behaviors described in the THPQ.
Example: Item 3
My child refuses to sit on the potty or the toilet to defecate.

• Negative emotions associated with defecation in potty or toilet (pain, fear, discomfort, anxiety): 6 (100% agreement)

• Sensory avoidance or over-responsivity: 2
• Motor/postural challenges: 2
• Cognitive challenges: 1

Probe question 3:
Do you think that typically developing children have this behavior?

• Experts believed that many behaviors hypothesized by the investigator to be associated with RFI sometimes occur in typically developing children.

Example: Item 3
My child refuses to sit on the potty or the toilet to defecate.

• Yes, but infrequent: 5 (83.3% agreement)
• No: 1