

Food Sensitivity Testing in Children: A Case Study and Narrative Review

Abstract

Despite the significant prevalence of food intolerances (FI) in children and adolescents (2 to 18-year olds), food intolerance mechanisms and testing are severely misunderstood and under researched. A FI is a non-immunological response that occurs after consuming a specific food particle causing gastrointestinal (GI) issues such as bloating, nausea, diarrhea, and abdominal pain. The lack of understanding of FIs may result in many children following an unsupervised elimination diet, which increases the risk of developing nutrient deficiencies. The objectives of this study were to assess the impact on quality of life (QOL) that FIs have towards children and adolescents by analyzing available literature and utilizing a case study participant. Findings suggested that more research is needed to understand food intolerance to improve the QOL in children and adolescents.

Methods

- MEDLINE database (January 2023)
- Primary research articles
- Three key words:
 - “gastrointestinal symptoms” (including abdominal pain, nausea, vomiting, constipation, or diarrhea)
 - Connected with the Boolean operator “OR”
 - “Food intolerance” (extended to food sensitivity, food challenge, or IgG using the Boolean operator “OR”)
 - “Quality of life”

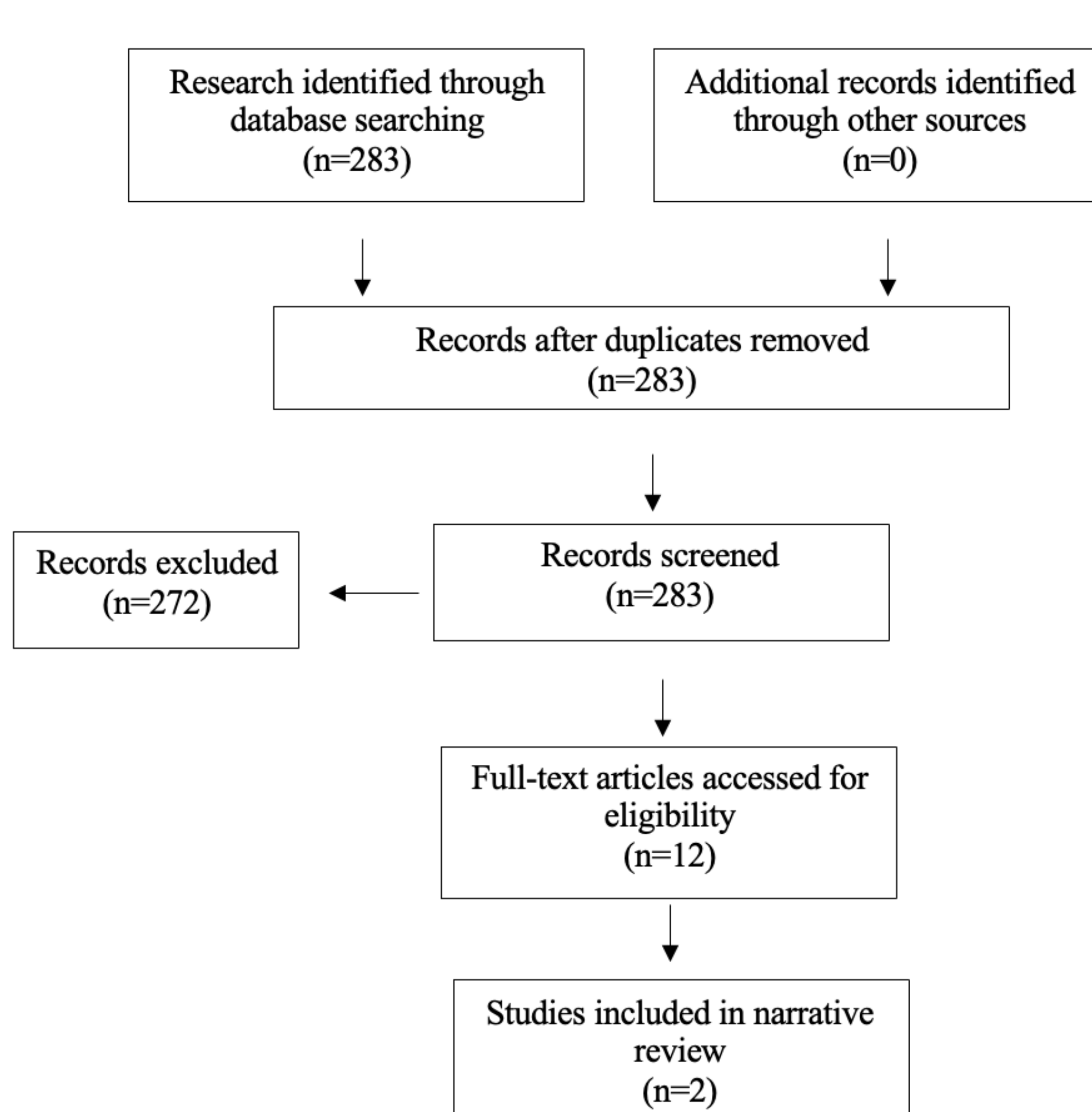
Other inclusion criteria:

- 2-18 years-old
- Published within the last 10 years (2013-2023)

Exclusion criteria:

- Allergies/associated symptoms (asthma)
- Attention hyperactivity disorder
- Autism

PRISMA Flow Chart



Summary of Literature Reviewed

“Self-Perceived Food Intolerances are Common and Associated with Clinical Severity in Childhood Irritable Bowel Syndrome (IBS)”

- 154 children (7-18 years old) with IBS determine how their self-perceived food intolerances impact QOL
- Assessment tools:**
 - 7-day pain diary to evaluate their gastrointestinal discomfort
 - The Children's Somatization Inventory to analyze the frequency of 35 symptoms
- Researchers found:**
 - 93% of children with IBS can identify at least one food which exacerbates symptoms
 - The number of food intolerances does not impact their severity of symptoms
 - There is an increased psychosocial stress related to food intolerances

“Child and Parent Perceived Food-induced Gastrointestinal Symptoms and Quality of Life in Children with Functional Gastrointestinal Disorder”

- 25 children (11-17 years old) with Functional Gastrointestinal Disorder (FGID) were studied to determine how food intolerances impact QOL
- Assessment tools:**
 - Food and Symptom Association Questionnaire to assess FI symptoms and frequency of symptoms related to food intolerances
 - Pediatric Quality of Life Inventory GI Symptom Score to quantify QOL related to GI symptoms
- Researchers found:**
 - Decreased QOL is associated with the prevalence of FI
 - Children practice coping mechanisms to improve their QOL
 - Increased psychosocial stress related to FI

Discussion

- No antidote/treatment exists for food intolerances, so they require a change in diet and/or medications to alleviate symptoms

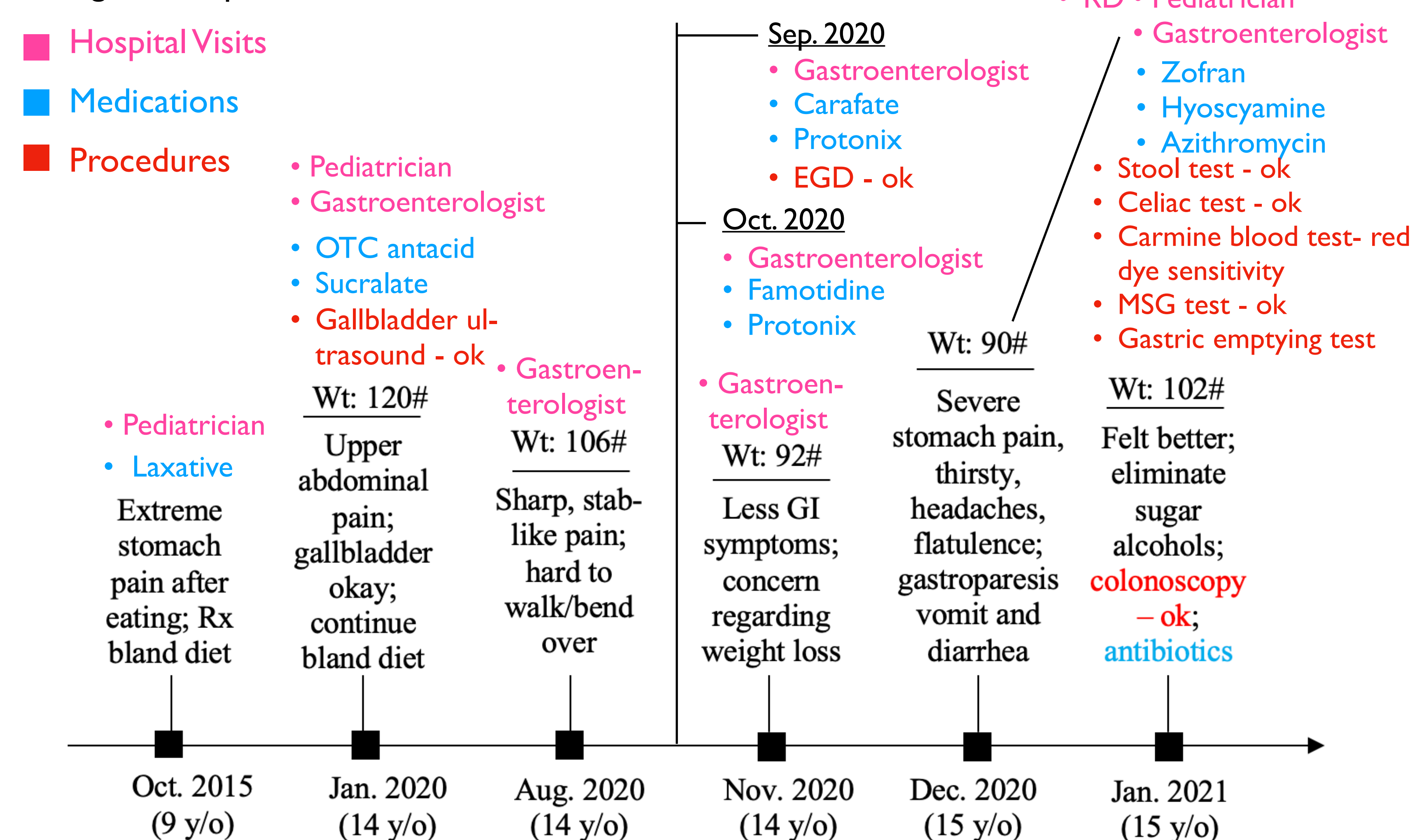
	The Literature	Case Study
Common Food Intolerances	<ul style="list-style-type: none"> Glutamates: tomato, cheese Salicylates: apples, bananas, grapes, tomato High protein foods: shrimp, chicken, beef Vasoactive amines: wine, beer, processed meats Caffeine: coffee, tea, sodas Lactose: milk, cheese, yogurt 	<ul style="list-style-type: none"> Tomatoes (glutamates) Bananas and lemons (salicylates) Poultry, meat, and fish (high protein foods) Red food dye
Alleviating Symptoms	<ul style="list-style-type: none"> Selecting fruits at varying ripening stages (bananas) Reduce portion sizes Consume other foods to relieve symptoms (bread, crackers, mints, yogurt) Medications 	<ul style="list-style-type: none"> Substitutes marinara for Alfredo sauce on pizza Consumes yogurt to reduce symptoms Medications

Decreased QOL:

- Missed school days for doctor's appointments or flare in symptoms
- Left out of social scenarios involving food (cafeteria, sports events, social gatherings)
- Took over a year to identify FIs
- Underwent two unnecessary surgeries to eliminate risk of organic disease
- Medications are for short term relief and often, ironically, cause GI problems

Case Study- SC

- Experienced a difficult journey to determine that the cause of her severe GI symptoms were FIs
- Doctors attempted to blame her weight loss as anorexia; it was not until SC met with a Registered Dietitian, who helped her identify her FIs, that her QOL (including weight) began to improve



Conclusion

- Children with FIs have consistently been shown to have a decreased QOL as a result of common GI symptoms.
- The gravity of GI symptoms caused by FIs is both physically painful and interferes with socialization of the child.
- The lack of standardization for diagnosing FIs causes confusion in understanding and treating them among health care professionals.
- Future research:** understanding FI diagnosis and treatment so children can live a normal, healthy life

References

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