

Gut Feelings

Disorders of Gut- Brain Interactions

Dr. Kim Bretz ND



Conflict of Interest



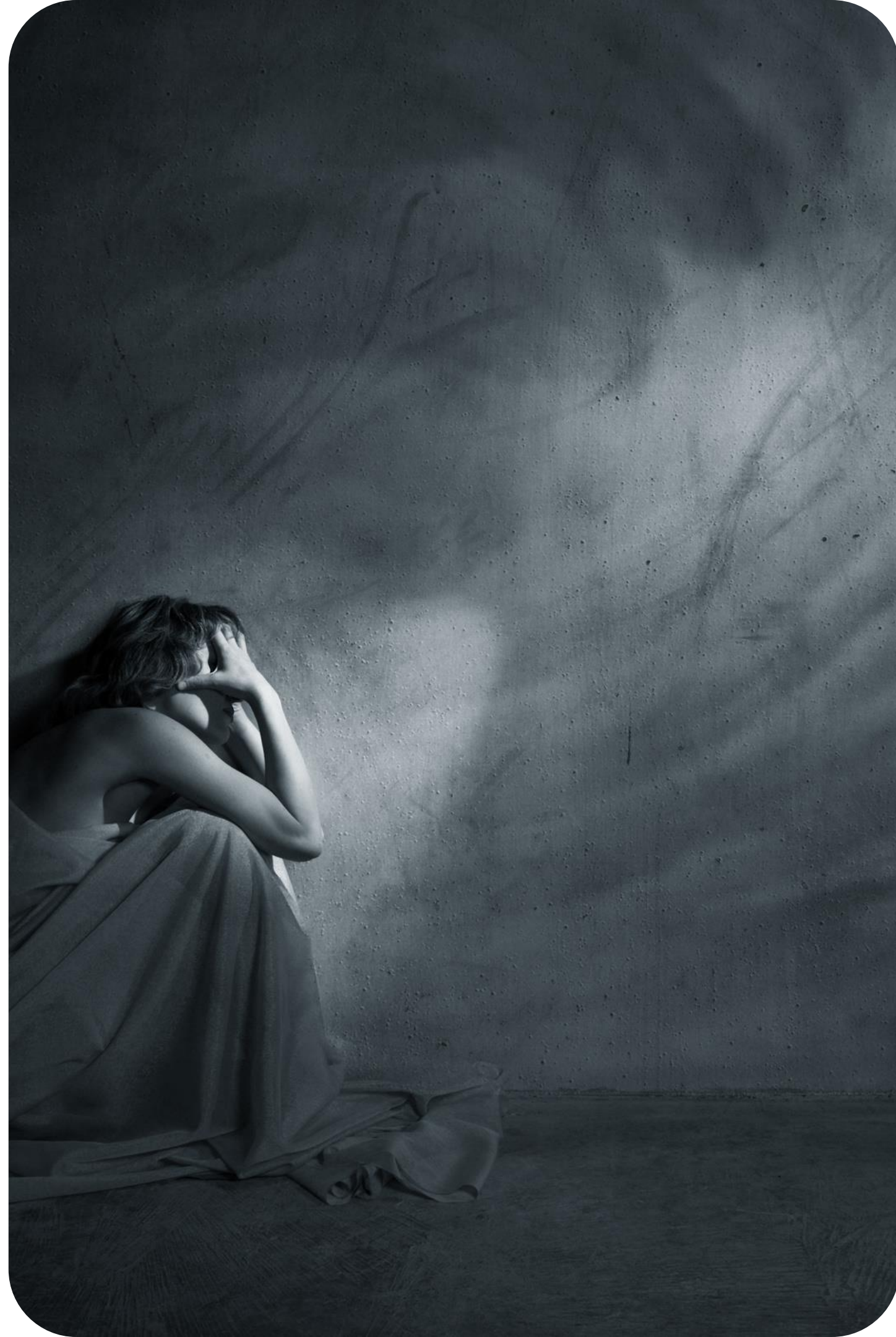
I am an Expert Clinician with The Confident Clinician and am paid as an educational contractor. I also have pay-per-use courses that I receive royalties on through The Confident Clinician

I am a consultant speaker for Pear Healthcare Solutions & have spoken for numerous companies including RMA, DFH, Cytomatrix, Thorne, New Roots Herbal & Ferring Pharmaceutical

I am faculty with the University of Waterloo, Pharmacy School



The Impact



“A majority of patients would give up 10–15 years of life expectancy for an instant cure for their condition”

Goals for **Today**



- Identify the hallmarks of the disorders of gut-brain interactions
- Understand the risks associated with our standard care
- Review assessment methods to improve diagnosis
- Understand treatment methods available in this category of conditions



Case Scenario

The patient:

- 46 year old female with chronic 'burning in the stomach', bloating & fullness; on-going for years feels started after a trip resulting in traveler's diarrhea - has seen multiple practitioners
- Testing:
 - Negative H pylori
 - Food intolerance testing: +ve dairy, gluten containing grains, many beans & nuts, mushrooms, egg whites
 - SIBO: -ve
 - Iron deficient (ferritin 7 ng/ml), non-anemic
 - Standard blood work WNL
 - Endoscopy, ab US: -ve
- Diet: avoids coffee, spicy, raw onions & garlic & fatty foods; limits alcohol
 - Still symptomatic - but lessened with eliminations



Case Scenario

Symptoms & History:

- Daily epigastric burning
- Constipation tendency - Bristol stool 1-3; hard to pass, daily bm
- History of 'nervous stomach; can have bloating, belching & gas
- Triggers: eating, end of day; eating outside of the home, uncertainty about what symptoms will do
- Impact: limits activities with friends & work; family frustrated with eating 'habits', embarrassment, doesn't want to travel; sleep disrupted
- Medical history: perimenopausal with increased mood symptoms premenstrually; does not meet criteria for depression; moderate anxiety (via GAD-7)
- A perfectionist, self-described worrier

What would you do?

-
-
-
-
-
-
-
-

Is it altered physiology?

Or is it altered perception?

Barrett's Esophagus

Erosive Esophagitis

Non-erosive reflux disease (NERD)

Reflux hypersensitivity

Functional Heartburn

**Altered Physiology versus
Altered Perception
Continuum Through the
Lens of
Reflux Disorders**

Altered physiology

Modulating/predisposing factors:

- Obesity
- Hiatus hernia
- Alcohol
- Smoking
- Older age (over 45yo)
- Male
- Diet

Altered perception

Modulating/predisposing factors:

- IBS/dyspepsia
- Anxiety/depression
- Hypersensitivity
- Hypervigilance
- Somatization
- Fear
- Insomnia

Altered physiology

Treatment considerations:

- Endoscopic monitoring
- Reflux treatment
- Esophageal resection
- Radiofrequency ablation
- Cryotherapy

Altered perception

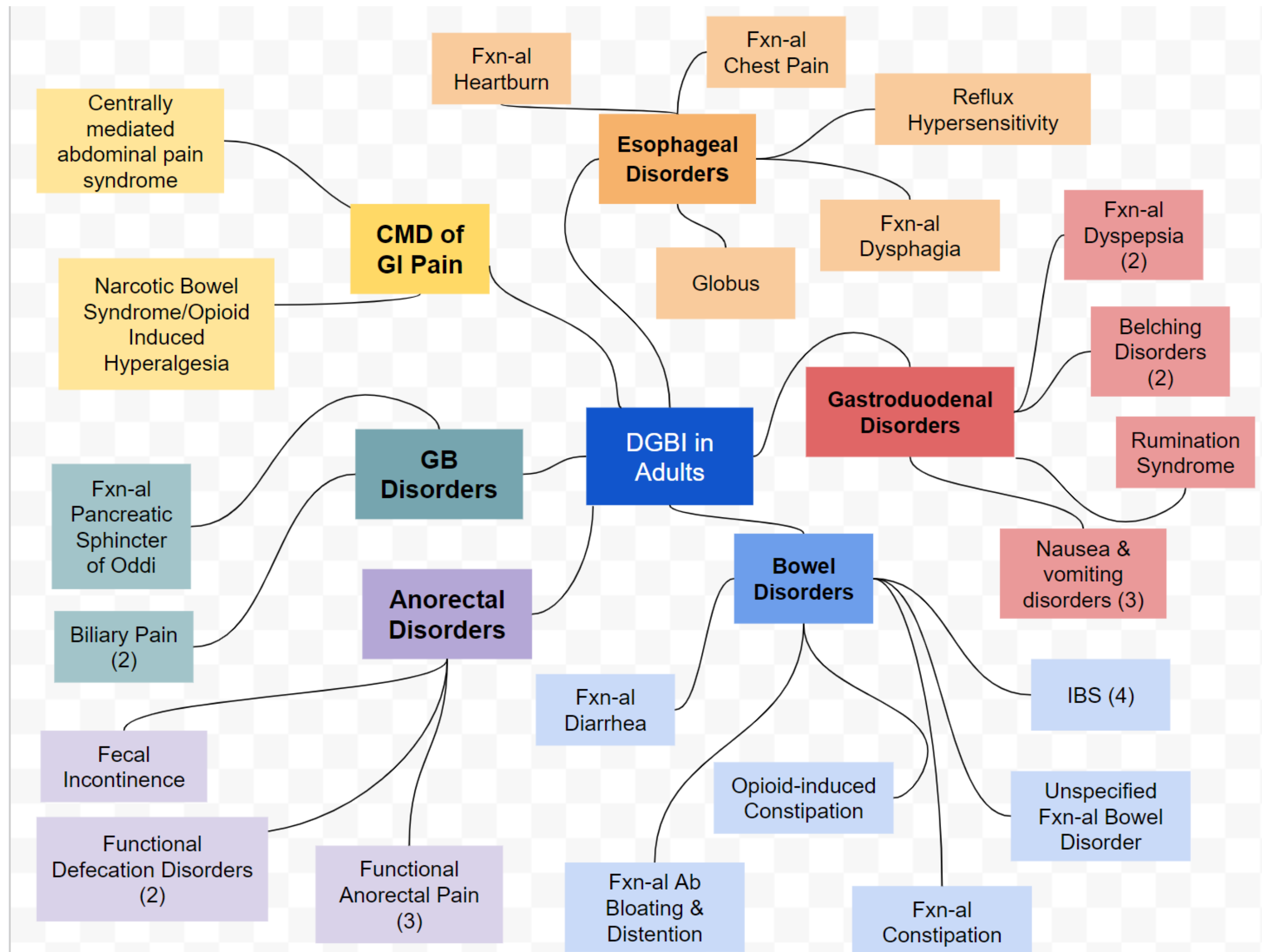
Treatment considerations:

- Gut-brain miscommunication re-training
- Neuromodulators
- Diaphragmatic breathing
- Mucosal protectants
- “Alternative medicine”

adapted from:

<https://www.medscape.org/viewarticle/955652><https://www.medscape.org/viewarticle/955652>

Rome IV Classification of Disorders of Gut Brain Interaction



DGBI in Canada

Diagnostic criteria for at least one of the 22 DGBI = 41.3%

- Any DGBI:

- Male - 35.3%

- **Female - 47.2%**

- Age:

- 18-39 yo: 44.3%

- 40-64 yo: 42.6%

- + 65 yo: 32.6%

Almost half the females in the study would meet the criteria for at least one DGBI



DGBI in Canada

Want the list of criteria?

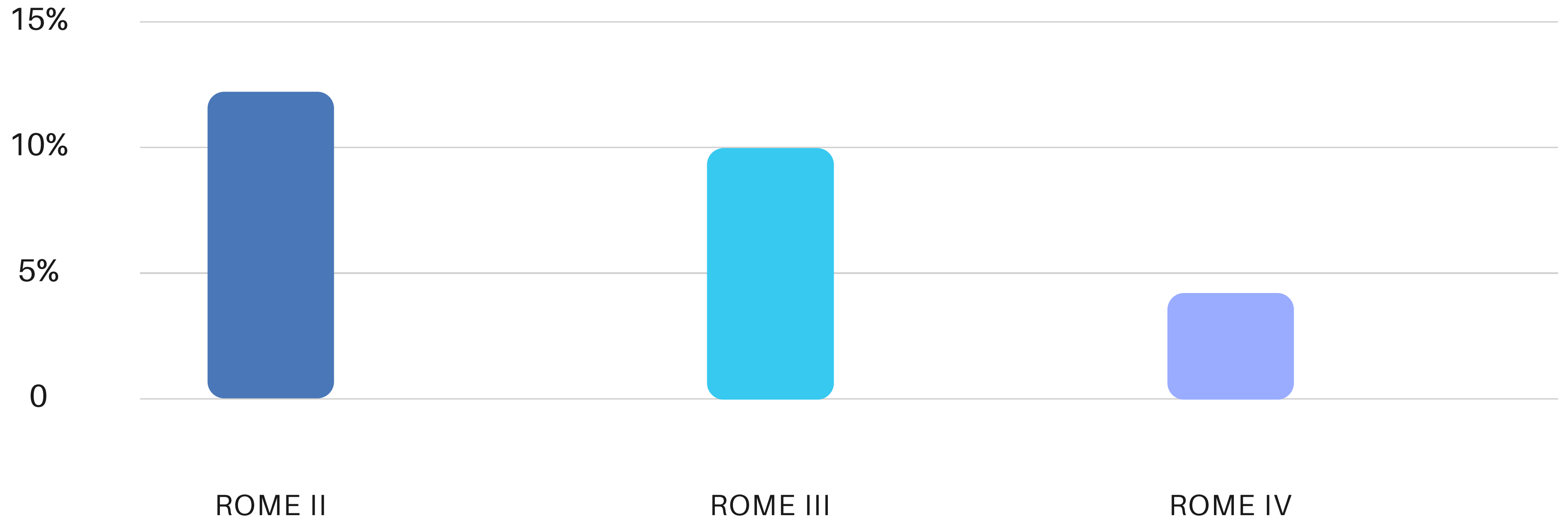
<https://theromefoundation.org/rome-iv/rome-iv-criteria/>

- Most common disorders?
 - Functional constipation
 - Functional bowel disorder - unspecified
 - Functional dyspepsia
- Why not IBS?
 - IBS was found at a rate of 4% (6% in women)
 - Mixed type (49%), constipation type (27%) and diarrhea type (19%)
 - But the rate of diagnosis more than doubled with the older Rome criteria



Changes in IBS Diagnosis

ROME II-IV



DGBI in Canada



- "In those with DGBI, the presence of multiple DGBIs and/or prescription pain medication use are associated with poorer patient-reported outcomes"
- "More than twice as many Canadians with a Rome IV DGBI reported they went to a doctor at least once a month compared to those without a DGBI"
- "Individuals in Canada with DGBI have higher healthcare utilization and greater use of prescription pain medications compared to people without those disorders"

DGBI in Canada

- Patients with a DGBI in the Canadian survey sample were more likely to be regularly on medications for gastrointestinal symptoms than those without a DGBI - 59% v 35%
- Medication use for comorbid anxiety, depression, or insomnia also appeared to be more commonly used by people with DGBI
 - Anxiety - 23% v 11%
 - Depression - 23% v 11%
 - Insomnia - 14% v 10%

Prescription pain medications were used much more in those with a DGBI - 17% v 9%

A photograph of a desk with a smartphone, a laptop, and a notebook. The smartphone is a gold-colored iPhone lying on a white notebook. A silver laptop is partially visible in the foreground. The background is slightly blurred, showing a wooden desk and a pen.

What we **Understand**

What are Disorders of Gut-Brain Interactions?

A group of disorders classified by GI symptoms related to any combination of:

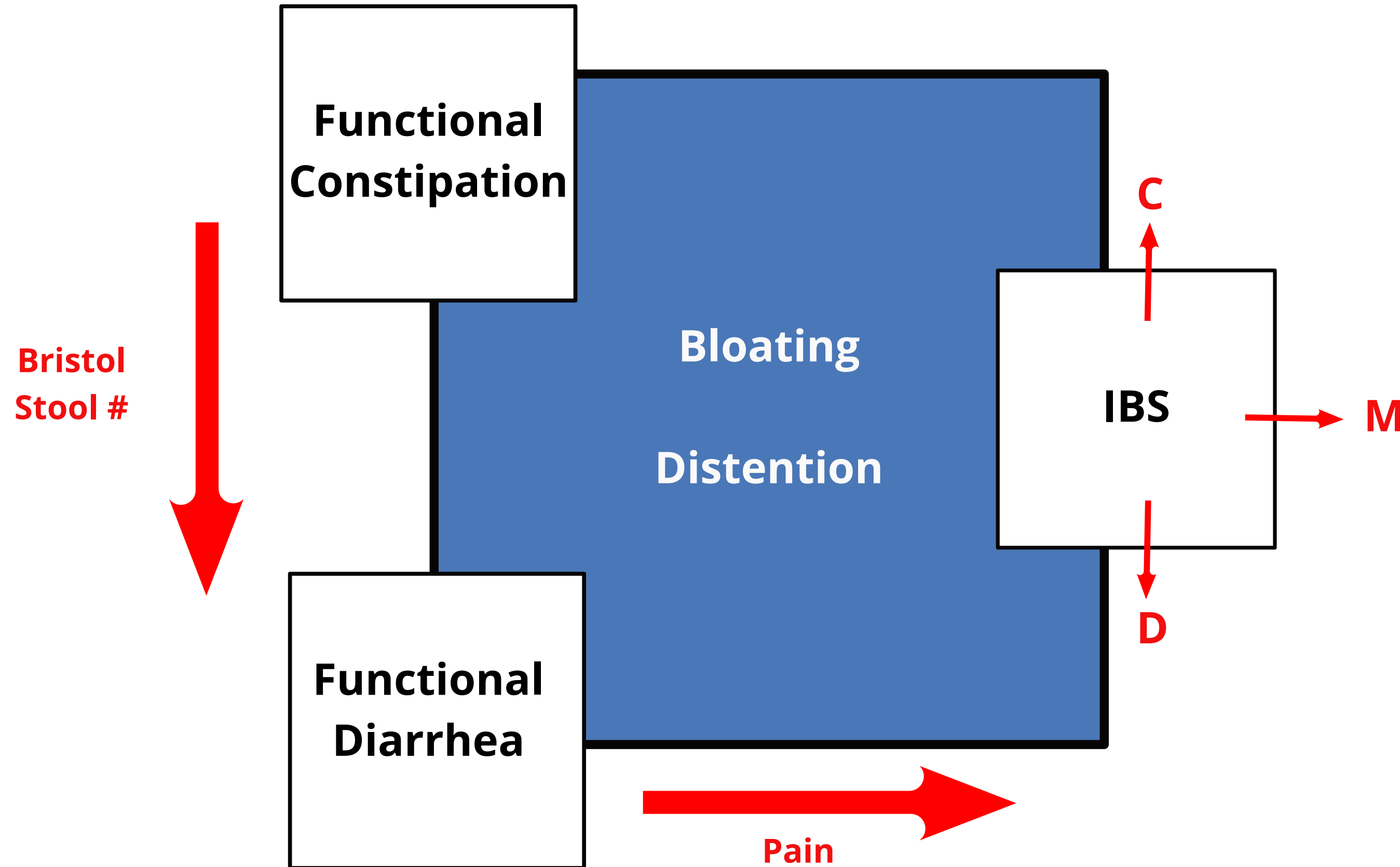
- motility disturbances
- visceral hypersensitivity
- altered mucosal and immune function
- gut microbiota and/or
- central nervous system processing

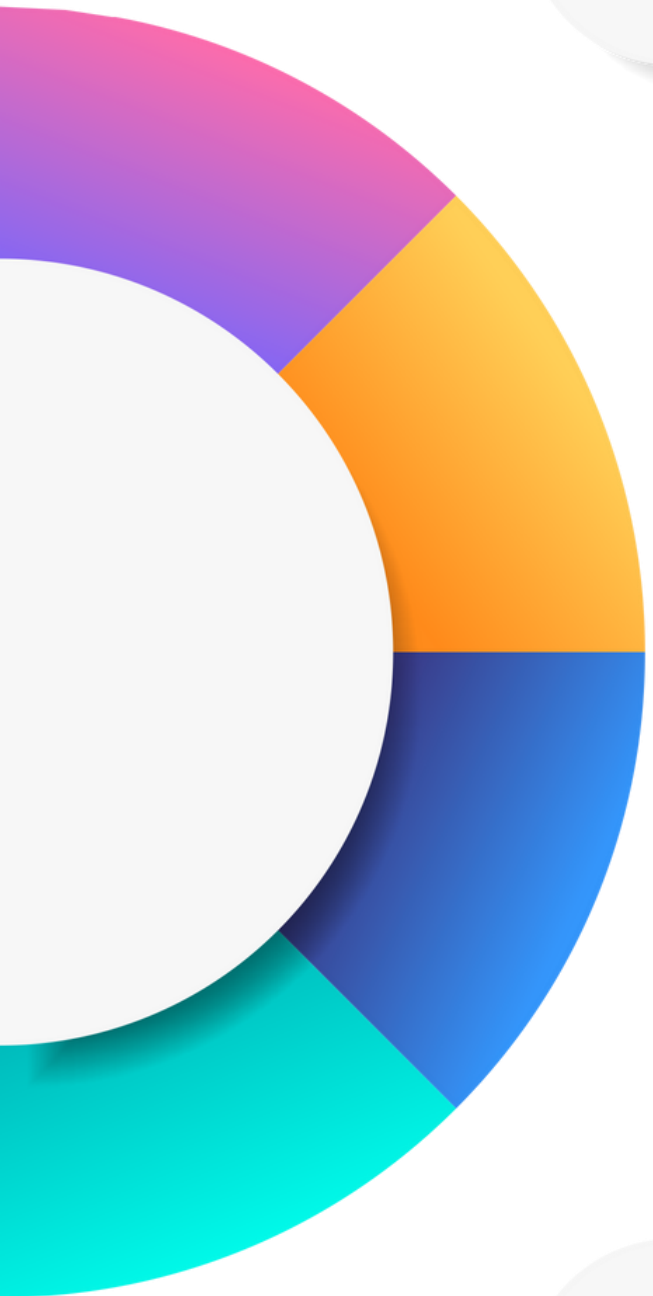
Bringing it back to altered physiology versus altered perception

- Explicitly in DGBIs there is altered perception as an underlying issue
 - (Exception: drug-induced conditions - opioid induced constipation, cannabinoid hyperemesis...)
- Does that mean there's no altered physiology?
 - No but...the findings are neither sufficient nor necessary for defining the condition
 - And altered physiology is not required **and** may be caused by the altered perception or the changes made trying to 'fix' the problem



Diagnosing is on a continuum and requires nuance





Clinical Modifiers



Impact on Daily Activities



Psychosocial Modifiers



**Physiological Modifiers of
Function and Biomarkers**

**Individualizing treatment
requires understanding
multiple dimensions of the
clinical presentation**

What's happening with our patient?

- Diagnosis: **Functional Dyspepsia**
- Clinical Modifier:
- Impact on Daily Activities:
- Psychosocial Modifier:
- Physiological Features & Biomarkers:



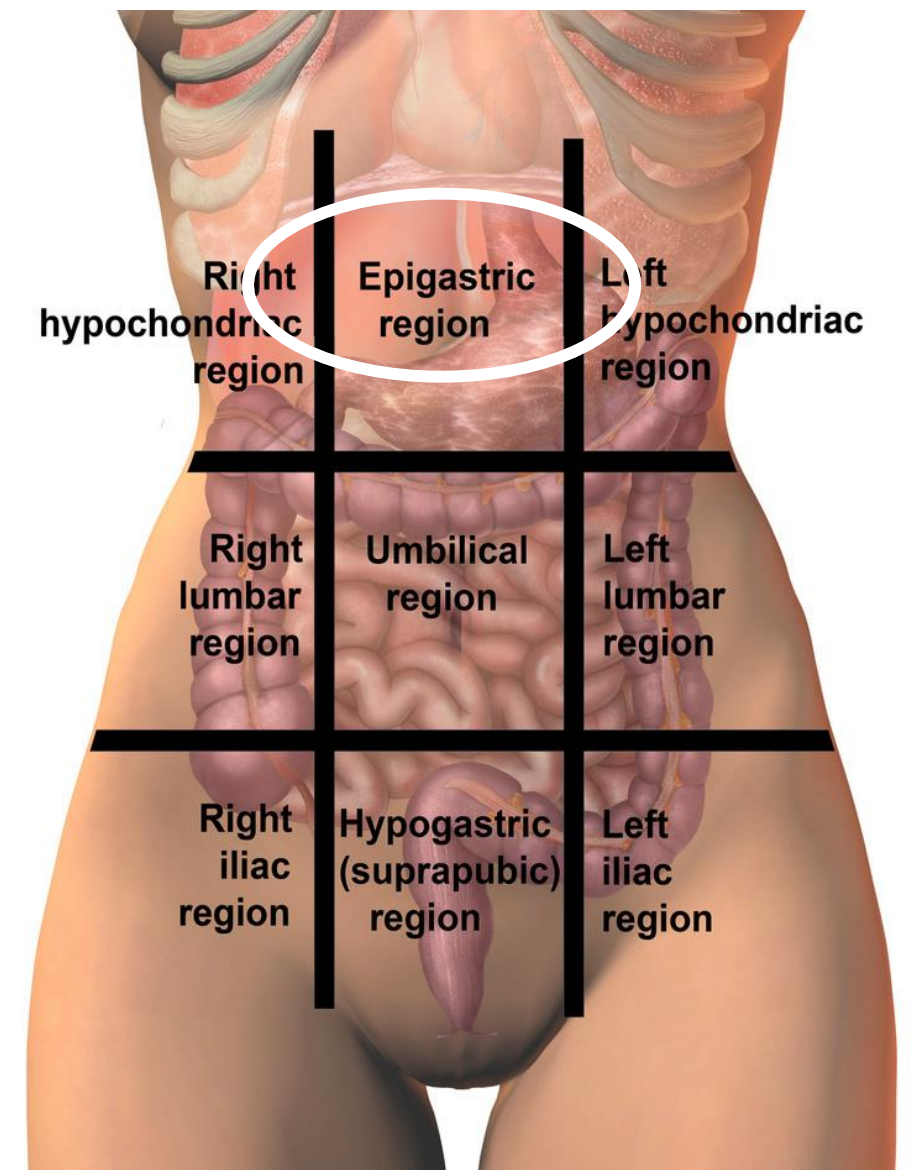
Functional Dyspepsia

Diagnostic criteria: Must include one or more of the following bothersome symptoms at least 4 times a month for at least 2 months prior to diagnosis:

- Postprandial fullness
- Early satiation
- Epigastric pain or burning not associated with defecation
- After appropriate evaluation, the symptoms cannot be fully explained by another medical condition

AND

- No evidence of structural disease (including at upper endoscopy) that is likely to explain the symptoms



EPIGASTRIC PAIN SYNDROME

Must include one or both of the following symptoms at least 1 day a week:

- Bothersome epigastric pain (i.e., severe enough to impact on usual activities)
- Bothersome epigastric burning (i.e., severe enough to impact on usual activities)

Functional Dyspepsia

POST PRANDIAL DISTRESS SYNDROME

Must include one or both of the following at least 3 days a week

- Bothersome postprandial fullness (i.e., severe enough to impact on usual activities)
- Bothersome early satiation (i.e., severe enough to prevent finishing a regular size meal)

General Modifiers	Functional Dyspepsia	IBS
Functional Somatic Syndromes (i.e. FM, CFS)	PDS, EPS or both	Post-infectious
Narcotics	Post-infectious	Post-prandial symptoms
Fatigue	Acute-onset	FODMAP sensitive
Sleep disturbance	Weight loss	With urgency
Other condition related to DGBI	Co-existing nausea, bloating, belching or vomiting	With fecal incontinence
	Constipation	With bloating
		IBD-IBS

Clinical Modifier
EXAMPLES

What's happening with our patient?

- Diagnosis: **Functional Dyspepsia**
- Clinical Modifier: **Postinfectious, PPD, EPS, Constipation, Co-existing bloating/belching**
 - General Modifier: **Sleep Disturbance, Fatigue**
- Impact on Daily Activities:
- Psychosocial Modifier:
- Physiological Features & Biomarkers:



Impact on Daily Activities

- Defining severity of impact requires understanding several factors relating to the:
 - Biopsychosocial combination of the gastrointestinal AND extraintestinal symptoms
 - Degree of disability and illness related perceptions
 - Behavioural modifications
- Visceral & central factors will impact on this

Question to ask: *“Overall, how much do the symptoms currently interfere with life (work, school, social activities, self-care, concentration and performance) –*
none/mild/moderate/severe”

What's happening with our patient?

- Diagnosis: **Functional Dyspepsia**
- Clinical Modifier: **Postinfectious, PPD, EPS, Constipation, Co-existing bloating/belching**
 - General Modifier: **Sleep Disturbance, Fatigue**
- Impact on Daily Activities: **Moderate**
- Psychosocial Modifier:
- Physiological Features & Biomarkers:



Psychosocial Modifiers

- Identify psychological and psychosocial modifiers and co-morbidities that influence the patient's experience of the illness and behaviors that will affect treatment decisions
 - Psychological/Psychiatric Symptoms/Syndromes (DSM IV or V) - consider current & previous
 - Major Stressors (mild, moderate or severe) - Emotional, sexual or physical abuse history, war trauma, major work disruption, major loss that is either recent (i.e., grief process within the past year) or longstanding but unresolved
 - Rome Psychosocial Flags



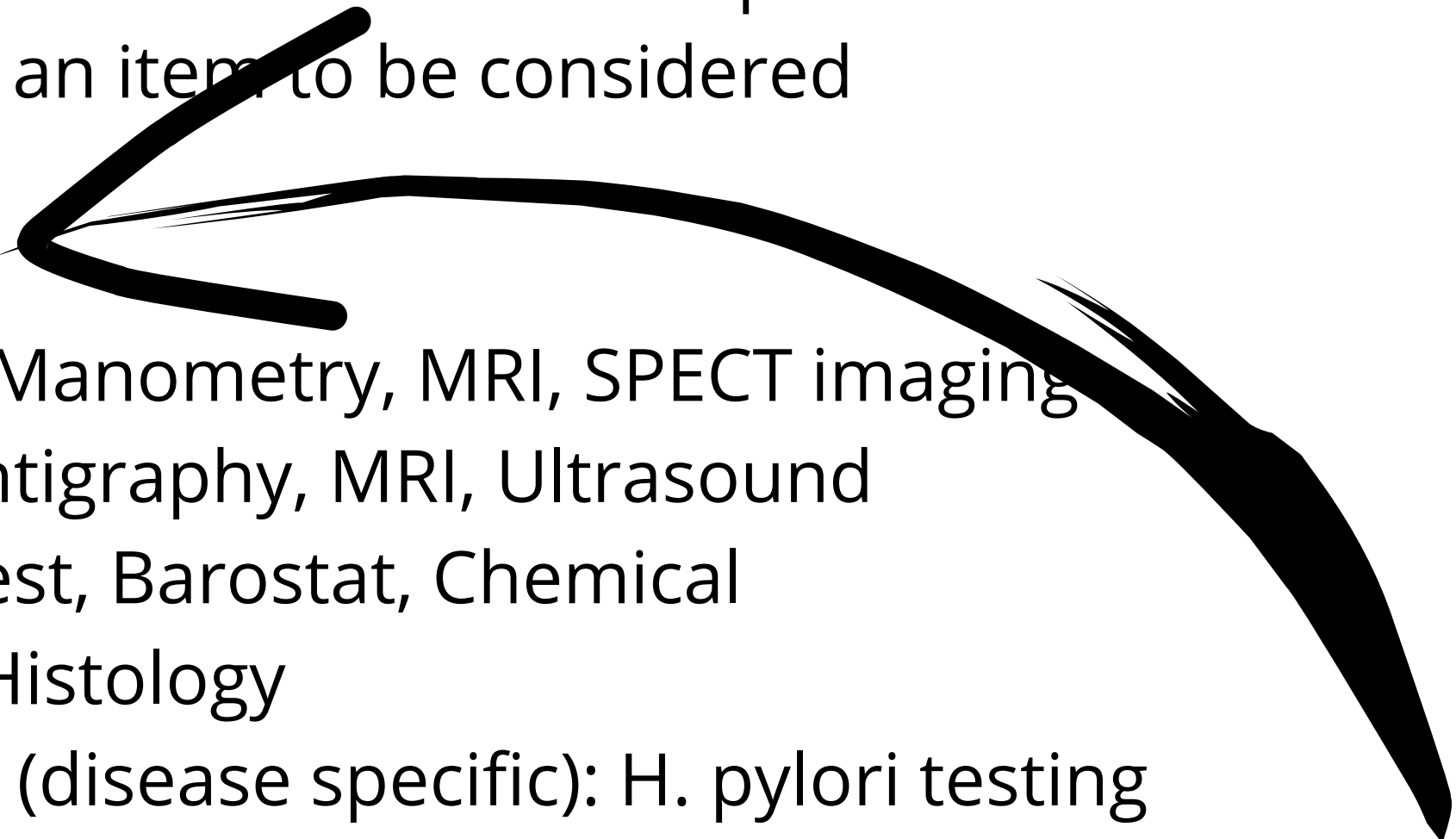
Rome Psychosocial Flags

What's happening with our patient?

- Diagnosis: **Functional Dyspepsia**
- Clinical Modifier: **Postinfectious, PPD, EPS, Constipation, Co-existing bloating/belching**
 - General Modifier: **Sleep Disturbance, Fatigue**
- Impact on Daily Activities: **Moderate**
- Psychosocial Modifier: **Early Childhood Trauma, Moderate GAD**
- Physiological Features & Biomarkers:



Physiological Features & Biomarkers

- Parameters that may have clinical relevance and which may enhance the understanding of the diagnosis or have treatment implications. There must be sufficient external evidence for an item to be considered
 - **Stomach & duodenum**
 - Wall structure and activity: Manometry, MRI, SPECT imaging
 - Movement of contents: Scintigraphy, MRI, Ultrasound
 - Sensitivity: Nutrient drink test, Barostat, Chemical
 - Evidence of inflammation: Histology
 - Other analytical techniques (disease specific): H. pylori testing
- 

Dyspepsia is considered a disorder of the gastroduodenum within the DGBI categories

What's happening with our patient?

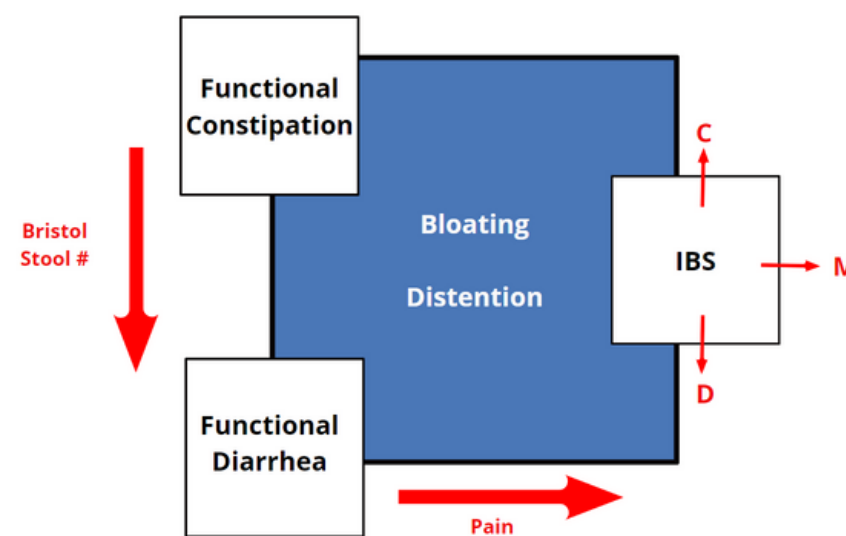
- Diagnosis: **Functional Dyspepsia**
- Clinical Modifier: **Postinfectious, PPD, EPS, Constipation, Co-existing bloating/belching**
 - General Modifier: **Sleep Disturbance, Fatigue**
- Impact on Daily Activities: **Moderate**
- Psychosocial Modifier: **Early Childhood Trauma, Moderate GAD**
- Physiological Features & Biomarkers: **None known (H pylori negative)**







In DGBI, bloating & distention is a common symptom - **but it can also be a diagnosis in of itself**



Another DGBI - Functional Abdominal Bloating & Distention



- Diagnosis: **Functional Abdominal Bloating/Distention**
- Clinical Modifier: **Post-prandial, sociocultural diagnosis challenge**
- Impact on Daily Activities: **Moderate**
- Psychosocial Modifier: **Emotional distress**
- Physiological Features & Biomarkers: **Caudo-ventral redistribution of abdominal contents**

Clinical Pearls with Chronic Bloating & Distention

- Bloating alone - often associated with visceral hypersensitivity
 - This word is also not used in all cultures
- Distention - often associated with muscular changes, slowed transit time and/or constipation
- Distention without evidence of excessive abdominal gas?
 - Would antimicrobials likely be effective?

A photograph of a desk setup. In the foreground, a silver laptop is partially visible, showing its keyboard and trackpad. To the right, a gold-colored smartphone lies on a white, lined notebook. In the background, a rolled-up document or scroll is visible on the desk. The scene is lit with soft, natural light, creating a professional and focused atmosphere.

Assessment

What do you need to think about?

- ✓ **Rule out red flags & test as needed (i.e. fecal calprotectin, celiac, H. pylori)**
- ✓ **Assess for DGBI - there are 22; get comfortable with these conditions**
- ✓ **Keep in mind: you can have a DGBI and an altered physiology condition at the same time**
- ✓ **Assess for concurrent issues including:**
 - **Eating disorders**
 - **Psychiatric disorders**
 - **Increasing symptom-based behaviours & catastrophizing**
 - **Gut specific anxiety...**




Case Scenario

More Details:

- Predisposing factors:
 - Adverse childhood events, perfectionism, high number of foods removed from diet with no consistent relief nor willingness to return foods to diet
 - High levels of present day stresses
 - Gallbladder removal 4 years ago
- Perpetuating factors:
 - Worry/maladaptive beliefs about GI symptoms (lack of acceptance of the diagnosis, hypervigilance, avoidant behaviours, high focus on all symptoms)
 - Limited dietary variety, lowered food volume

Concurrent Issues?

- Mental health assessment - GAD-7
- GI Cognition Questionnaire (GI-Cogs)
- IBS-Behavioural Response Questionnaire (IBS-BRQ)
- Pain Catastrophizing Scale (PSC)
- Visceral Sensitivity Index (VSI)
- Eating disorder assessment - i.e. ARFID

A photograph of a desk with a smartphone, a laptop, and a notebook. The smartphone is a gold-colored iPhone lying on a white notebook. A silver laptop is partially visible in the foreground. The background is slightly blurred, showing a wooden desk and a pen.

Gastrointestinal Specific Anxiety & VSI

Gastrointestinal Specific Anxiety

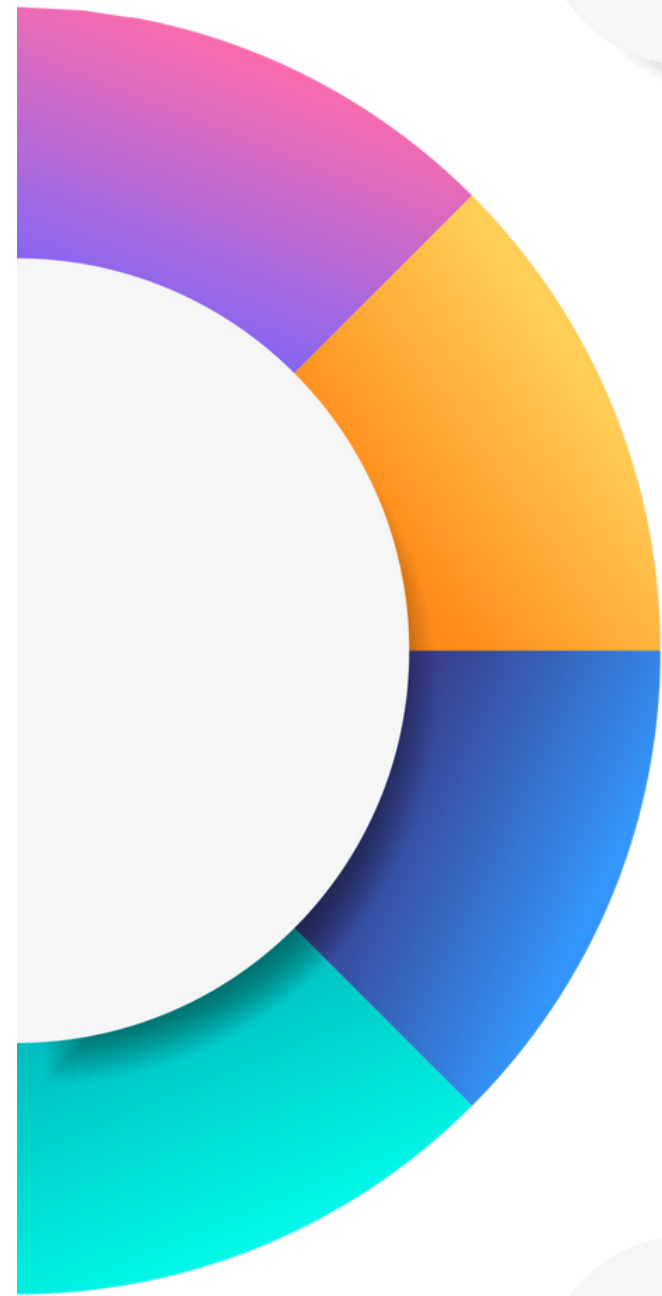
“the cognitive, affective, and behavioral response stemming from fear of GI sensations, symptoms, and the context in which these visceral sensations and symptoms occur”

Visceral Sensitivity Index (VSI)

- **Measures gastrointestinal symptom-specific anxiety (GSA)**
- Pathological anxiety directed towards bodily sensations may be present in patients who do not meet DSM-IV criteria for anxiety disorders
 - IBS patients generally are found to have psychiatric comorbidity in the form of anxiety disorders of up to 40%, a much larger number may show GSA, making the overall prevalence of all types of anxiety in these patients much higher.
- **GSA may play a role in the unexpected severe impairment of disease-related QoL reported by these patients**

- Patients with IBS show greater activation of the prefrontal cortex and anterior cingulate gyrus than do healthy individuals, and also perceive more abdominal pain
- Patients with IBS also demonstrate enhanced pathological vigilance and selective attention for their GI symptoms





Excessive activity of the amygdala

Activate insular cortex, prefrontal cortex
& anterior cingulate gyrus

Gastrointestinal specific anxiety

Aggravated GI symptoms

associated with
abdominal pain and
psychological
abnormalities such as
anxiety and depression

VSI

Testing


- 15-item self-report measure of GI symptom specific anxiety (GSA)
- 5-dimensions of GI-related cognitions and behaviours:
 - Worry
 - Fear
 - Vigilance
 - Sensitivity
 - Avoidance

**This is my most used
assessment in my GI patients**

Visceral Sensitivity Index (VSI)

Item	Strongly agree	Moderately agree	Mildly agree	Mildly disagree	Moderately disagree	Strongly disagree
1. I worry that whenever I eat during the day, bloating and distension in my belly will get worse	1	2	3	4	5	6
2. I get anxious when I go to a new restaurant	1	2	3	4	5	6
3. I often worry about problems in my belly	1	2	3	4	5	6
4. I have a difficult time enjoying myself because I cannot get my mind off of discomfort in my belly	1	2	3	4	5	6

- 15 questions, scale rating - 1-6

A photograph of a desk with a smartphone, a laptop, and a notebook. The smartphone is a gold-colored iPhone lying on a white notebook. A silver laptop is partially visible in the foreground. The background is slightly blurred, showing a wooden desk and some papers.

Eating Disorders including Avoidant/ Restrictive Food Intake Disorder

ARFID (DSM-5)

An eating or feeding disturbance (e.g., apparent lack of interest in eating or food; avoidance based on the sensory characteristics of food; concern about aversive consequences of eating) as manifested by persistent failure to meet appropriate nutritional and/or energy needs associated with **one (or more)** of the following:

- Significant weight loss (or failure to achieve expected weight gain or faltering growth in children)
- Significant nutritional deficiency
- Dependence on enteral feeding or oral nutritional supplements
- **Marked interference with psychosocial functioning*****

The disturbance is not better explained by lack of available food or by an associated culturally sanctioned practice.

WARNING SIGNS & SYMPTOMS OF ARFID - not comprehensive but specific to our discussion of the GI/hormone connection

Behavioral and psychological

- Reports constipation, abdominal pain, cold intolerance, lethargy, and/or excess energy
- Reports consistent, vague gastrointestinal issues (“upset stomach”, feels full, etc.) around mealtimes that have no known cause
- Dramatic restriction in types or amount of food eaten
- Will only eat certain textures of food
- Fears of choking or vomiting
- Lack of appetite or interest in food
- Limited range of preferred foods that becomes narrower over time
- No body image disturbance or fear of weight gain

Physical

- Stomach cramps, other non-specific gastrointestinal complaints (constipation, acid reflux, etc.)
- Difficulties concentrating
- Abnormal laboratory findings (anemia, low thyroid and hormone levels, low potassium, low blood cell counts, slow heart rate)
- Dizziness, fainting/syncope
- Feeling cold all the time; Cold, mottled hands and feet or swelling of feet
- Sleep problems
- Dry skin. dry and brittle nails
- Fine hair on body (lanugo), thinning of hair on head, dry and brittle hair
- Muscle weakness

ARFID Prototypic Motivations

- Sensory sensitivity - e.g., taste, texture or smell
- Lack of interest in food or eating (forgetting to eat, early satiety, and/or postprandial fullness)
- Fear of aversive consequences (vomiting, choking, abdominal pain, diarrhea, bloating, or other feared physical symptom)

Dyspepsia or other upper GI issue?

Many DGBIs?

BUT...
Reality

"Whether patients have ARFID, a gastrointestinal disorder, or both has significant implications for treatment choices."



Studies on AFRID in GI disorders

- Prevalence and Characteristics of Avoidant/Restrictive Food Intake Disorder in Adult Neurogastroenterology Patients. Murray, H. B. et al. Clin Gastroenterol H 18, 1995-2002.e1 (2020).
- Prevalence of eating disorders, especially DSM-5's avoidant restrictive food intake disorder, in patients with functional gastrointestinal disorders: a cross-sectional online survey Gastroenterology J.K. Zia, M. Riddle, C.R. DeCou 2017
- Harer K, Baker J, Reister N, et al. Avoidant/restrictive food intake disorder in the adult gastroenterology population: an underrecognized diagnosis? Am J Gastroenterol 2018

Although ARFID symptoms were common by chart review, patients rarely were formally diagnosed

Nine Item Avoidant/Restrictive Food Intake disorder screen (NIAS)

- Determine cutoffs to identify ARFID with and without the use of the Eating Disorder Examination- Questionnaire (Burton, et al 2021 - validation)
- 9 item questionnaire with 3 subscales to map each of the ARFID presentations (strongly disagree-strongly agree)
 - Subscale rating of 0-15 points
- Cutoff scores:
 - Picky eating (sensory): ≥ 10
 - Appetite (lack of interest): ≥ 9
 - Fear: ≥ 10

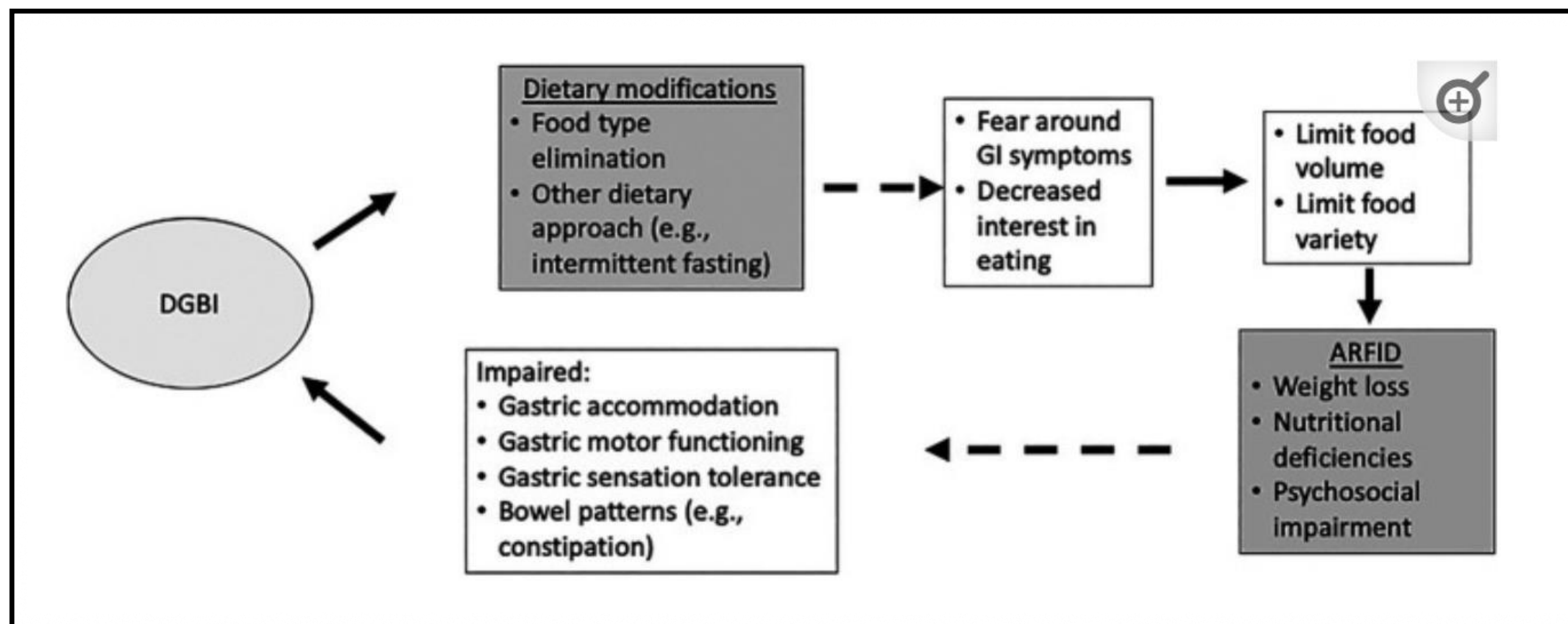
NIAS

Testing Criteria

Questions - Factor 3 (Fear)

- I avoid or put off eating because I am afraid of GI discomfort, choking, or vomiting
- I restrict myself to certain foods because I am afraid that other foods will cause GI discomfort, choking, or vomiting
- I eat small portions because I am afraid of GI discomfort, choking, or vomiting.

**Why do we care (beyond
'eating disorders are bad')?**



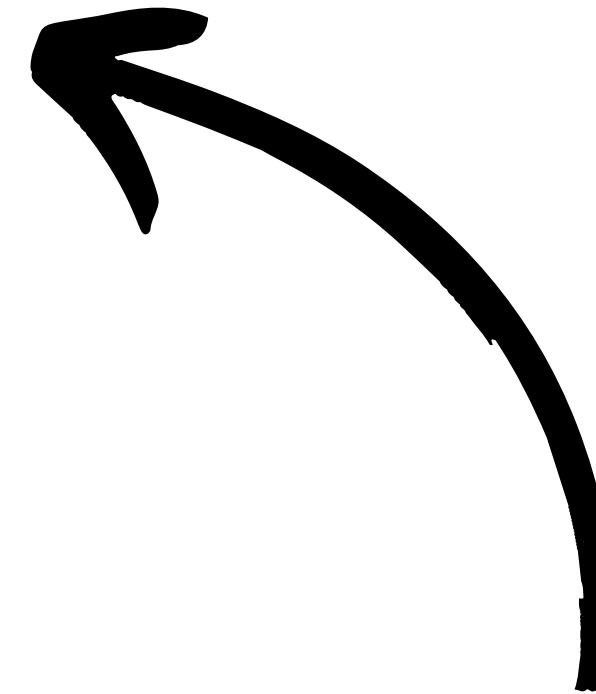
"In particular, a subset of patients may have dietary restriction (reduced volume, frequency, and/or variety) that crosses the eating disorder threshold as avoidant/restrictive food intake disorder (ARFID)"



drkimbretznd

Studies show the rate of orthorexia in dietitians and dietetic students to range between 34-68%.

What is the likelihood it's lower in naturopaths? And how might that affect practice if we're not aware of our own risks and biases?



Within healthcare, in general, and more so in DGBI and mental health disorders, we need to check our own biases & beliefs - what might have worked for us



Case Scenario



The patient:

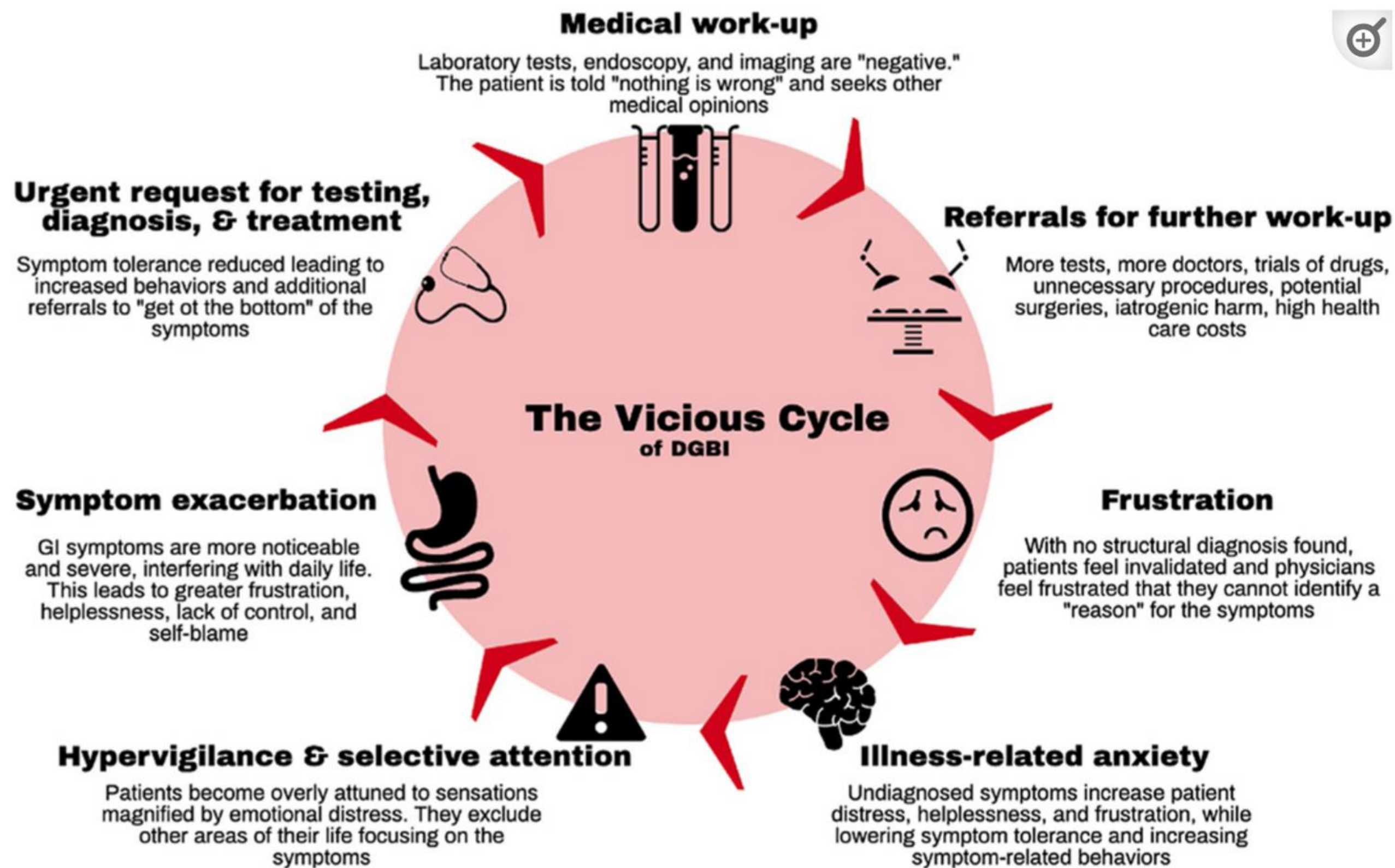
- Generalized Anxiety Disorder-7 (GAD-7): 12 (moderate anxiety)
- Visceral Sensitivity Index (VSI): 37 (severe) - gastrointestinal specific anxiety
- Avoidant Restrictive Food Intake Disorder Screen: NIAS - positive for fear of aversive consequences subset



Assessment Results in Gut Disorders

- What does it mean if your patients are afraid of their symptoms or the potential of their symptoms?
- Where does this fit into the placebo or nocebo effect?
- How do our assessments & treatments affect patients with strong levels of anxiety, behavioural changes, catastrophizing and/or eating disorders?
- What does it mean if you can't find anything physical?

FIGURE 1



A photograph of a desk with a smartphone, a laptop, and a notebook. The smartphone is a gold-colored iPhone lying on a white notebook. A silver laptop is partially visible in the foreground. The background is slightly blurred, showing a wooden desk and a white object. A blue rectangular overlay is positioned on the right side of the image, containing the word "Treatment" in white text. Another blue rectangular overlay is at the bottom right.

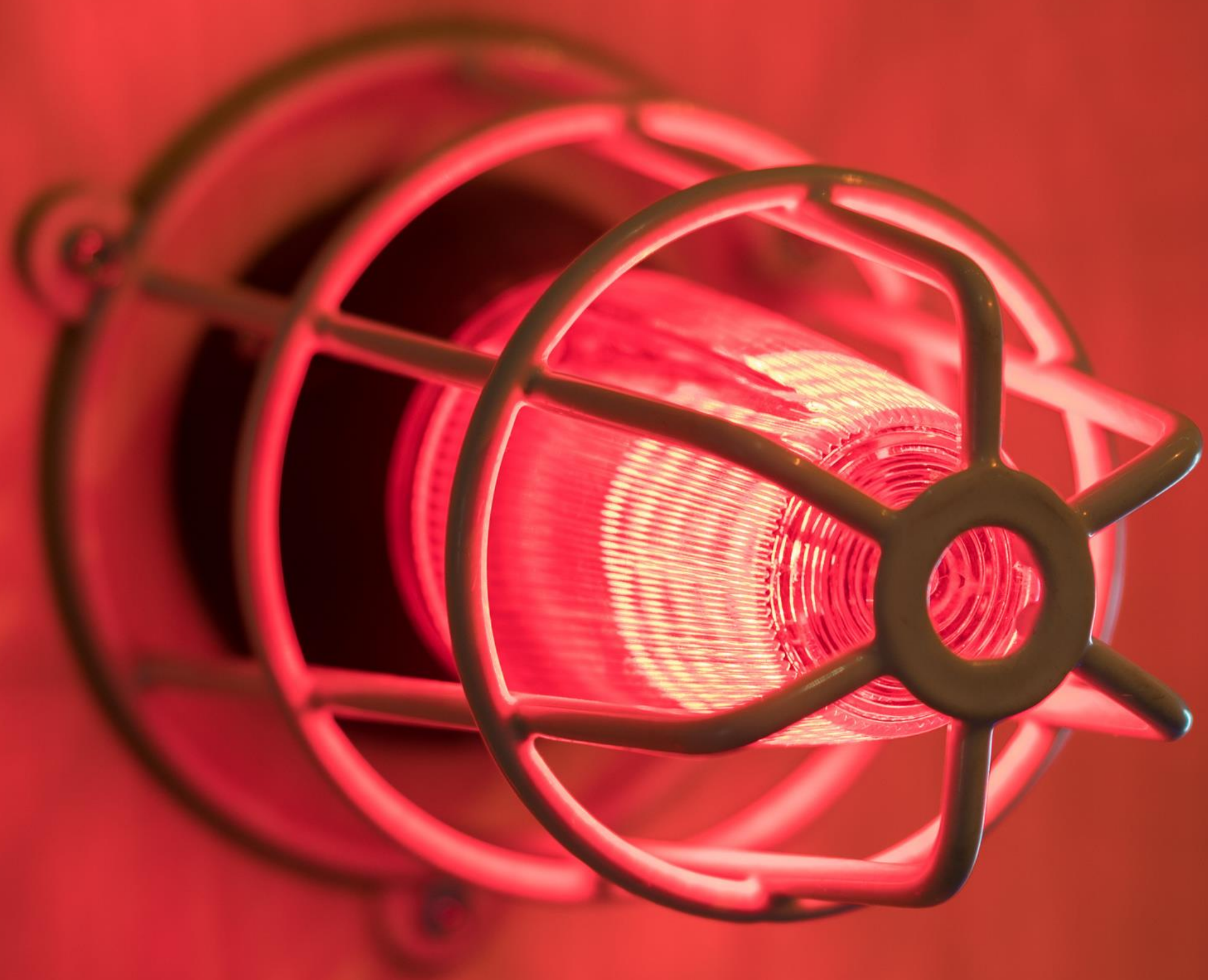
Treatment

What would you do?

- Food intolerance testing again?
- SIBO test again?
- Food elimination? Food prescription?
- Gut herbs – e.g. berberis, black walnut?
- Probiotic? Prebiotic? Fiber?
- Adrenal supplement?
- Iron supplement?
 - How to deal with the constipation?
- Sleep supplement?

What do you need to think about?

- ✓ **Does a disorder of gut-brain interaction seem less than other conditions?**
- ✓ **If we're always looking for something else/more/bigger - how has that come across to our patients**
- ✓ **Conversations about neuromodulators, stress & stigma - how is this affecting the patient**
- ✓ **New information regarding the gut-brain interaction:**
 - **DGBIs are NOT psychiatric disorders even if neuromodulators can be helpful & psychiatric disorders may be concurrent**
 - **It is possible to have pain and other GI symptoms without structural abnormalities**
 - **It is possible to have emotional distress without it being causative**





Diagnosis: **Functional Dyspepsia**

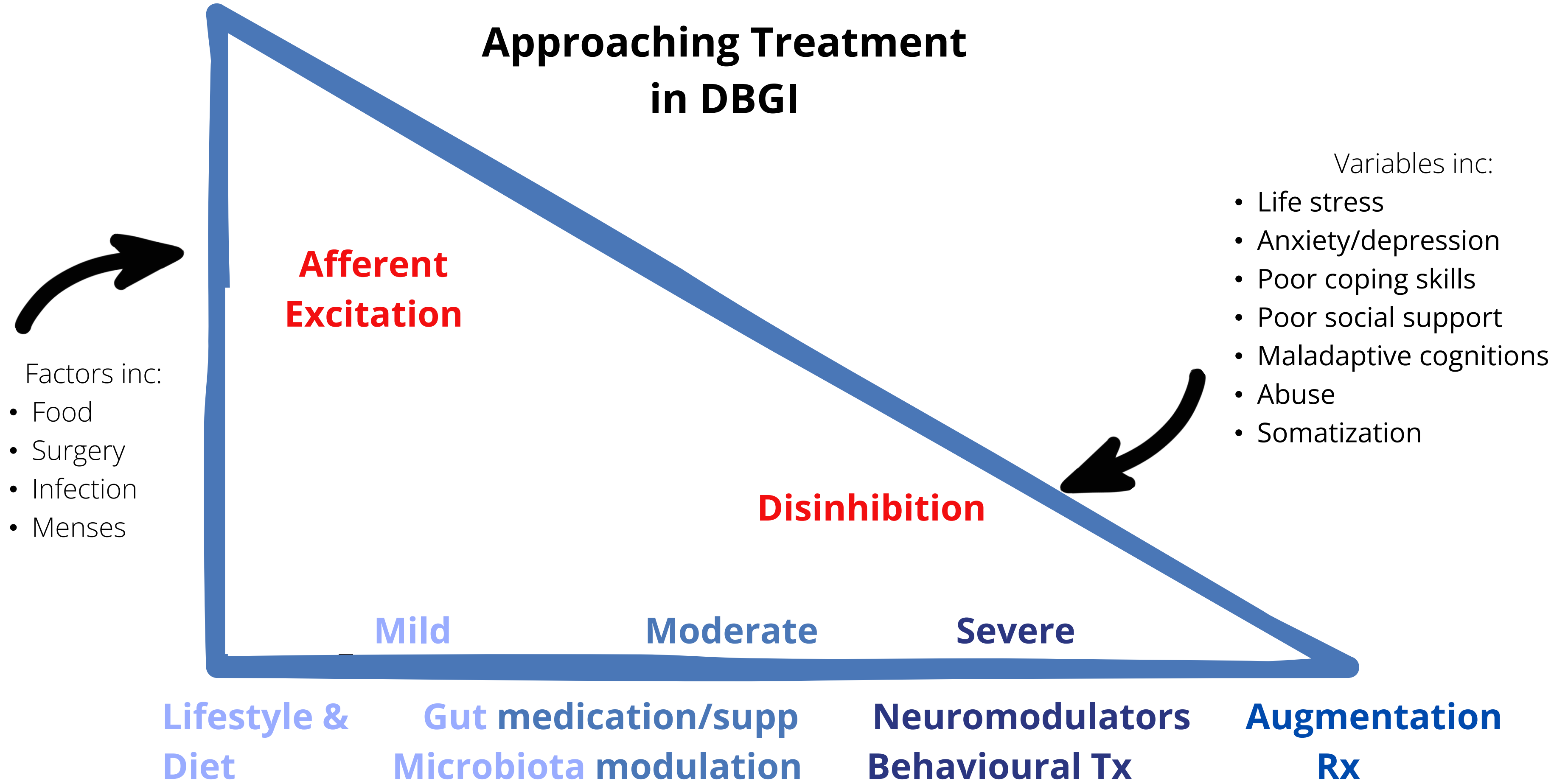
Clinical Modifier: **Postinfectious, PPD, EPS, Constipation, Co-existing bloating/belching**

General Modifier: **Sleep Disturbance, Fatigue**

Impact on Daily Activities: **Moderate**

Psychosocial Modifier: **Early Childhood Trauma, Moderate GAD**

Physiological Features & Biomarkers: **None known (H pylori negative)**



Pathophys of FD

Multiple factors can contribute to the development of FD



Gut-Brain Axis: stress, emotions, disordered eating; central hypersensitivity ***



Mucosal Barrier Dysfunction (low level): medication, diet, infections, low-grade inflammation



Alterations in gut microbiome: changes in bile acid pool, duodenal immune alterations; diet, medication, infections...



Motility & sensitivity alterations:

- Impaired gastric accommodation ***
- Delayed or rapid gastric emptying
- Visceral hypersensitivity ***
- Abnormal gastro-duodenal feedback

Dyspepsia – Treatments in General

1 There are a lot of disorders of DGBI - you need to be familiar

2 You need to individualize for the treatment of the person in front of you - use your clinical profile to help with organization

3 Set expectations early - this is a lot going on. And there is a lot of underlying issues including disordered eating, long term mental health issues + hormonal changes

- Dietary –lifestyle modification
- Medications
 - PPIs
 - Prokinetics (PDS)?
 - Neuromodulators
- Brain–gut therapy
- Peppermint oil/caraway oil
- Curcuma longa
- STW–5



Mental Health

- Early childhood trauma
- Anxiety
- Gastrointestinal symptom specific anxiety
- Disordered eating



Dyspepsia – Modifiers

- Post–infectious – microbiota dysbiosis?
 - Leading to gut sensitization
- Constipation
 - Barrier to treatment?
- Co–existing bloating/belching



Perimenopause/Iron deficiency

- Treatment may improve other areas – especially iron deficiency as a frank obstacle to cure



Central Neuromodulators in GI Disorders

- ✓ Treatment of co-morbid psychiatric disorders associated with the pain of their DGBI (i.e. anxiety/depression)
- ✓ Peripheral effects
 - Motility/secretion
 - Reduce nerve signalling from the gut
- ✓ Improve the brain's pain regulation
- ✓ May enhance nerve cell re-growth (neurogenesis)

Central Neuromodulators in GI Conditions

TCAs (i.e. desipramine, amitriptyline)

- Most convincing evidence @ low-mod dose for treating GI pain
- secondary amines (i.e. desipramine) have fewer H1 and M1 side effects than tertiary (i.e. amitriptyline)
- Reduces diarrhea, may worsen constipation

SNRIs (i.e. duloxetine)

- May have similar results to TCA but less data (based on data from somatic disorders)
- May help cognitive effects (like brain fog)
- Fewer side effects (nausea & mild constipation)
- Higher doses needed for venlafaxine

SSRIs (i.e. citalopram, fluoxetine)

- Not thought of for chronic pain
- May have some benefit from functional esophageal pain/chest pain
- Consider if anxiety is the dominant feature over pain

Buspirone

- Used in GI for dyspepsia (more specifically for PPD)
- Gastric receptor relaxation
- Side effects: dizziness, headache, sedation, nervousness, nausea

Peripheral Neuromodulators in GI Disorders

- specifically, Gabapentin & Pregabalin

- ✓ Peripheral neuromodulator with possible central effects used to treat:
 - pain
 - anxiety
 - seizure
- ✓ Commonly used in chronic pain conditions:
 - Neuropathic pain (e.g. peripheral neuropathy, carpal tunnel)
 - Fibromyalgia
 - GI pain
- ✓ Side effects (of the medication): sedation, dizziness, ataxia, fatigue, n/v, edema

• Proton pump inhibitors

- Standard of care in GI medicine (older studies showed no benefit, recent research refutes that, European guidelines promote it)

2b. Neuromodulators – EPS

- TCA can be used with diagnosis or after failure to respond to PPI
- SNRI – may be used for pt not tolerating TCA but lack of evidence (expert recommendation)

2a. Neuromodulators – PDS

- Buspirone (azapirone) – decrease early satiety & fullness (enhances gastric accommodation)
- Mirtazapine – may be helpful when n/v and weight loss are present

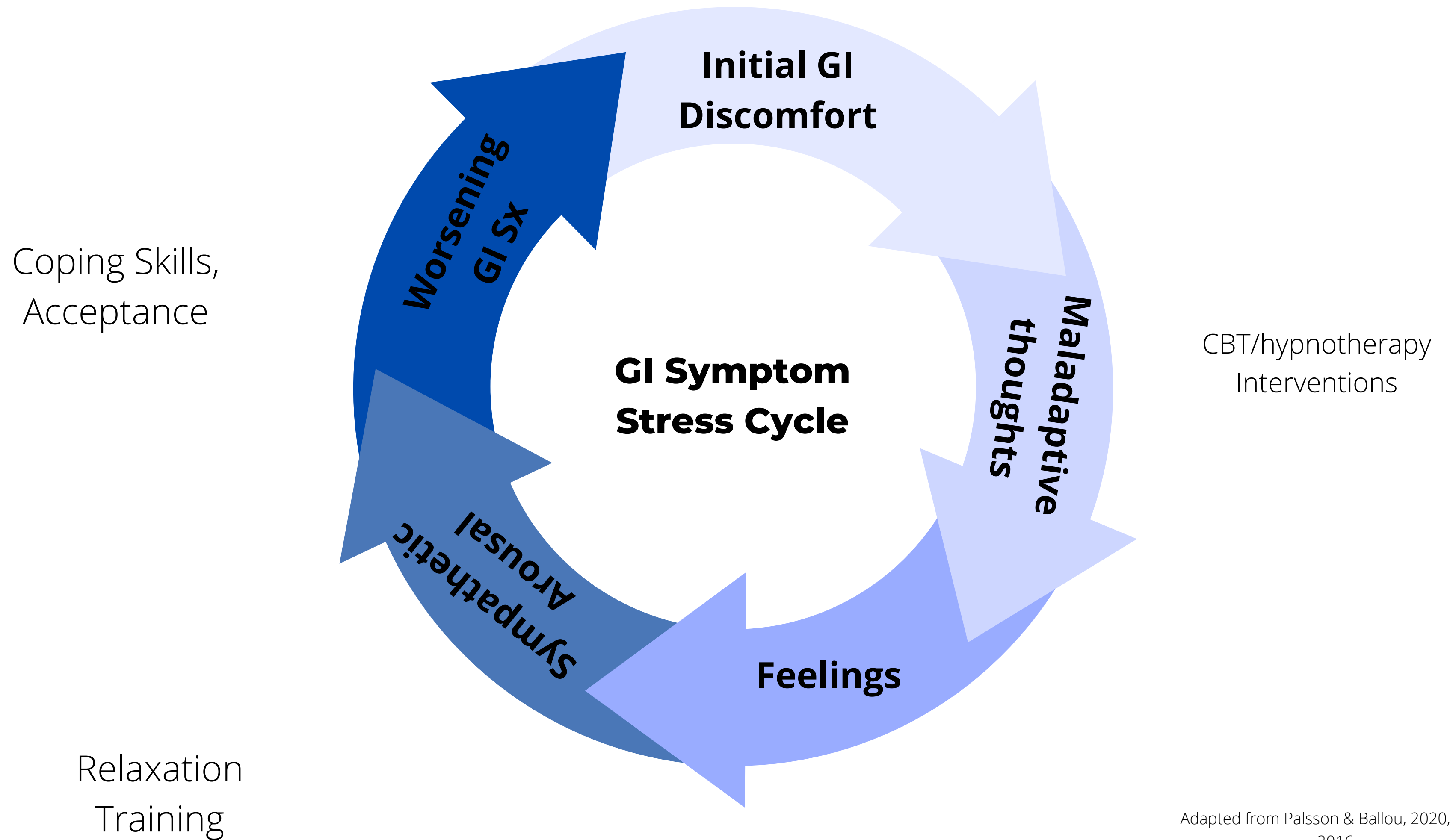
3. Prokinetic

- Studies are mainly based on older prokinetics that are often not available or have long term side effects
- Best for fullness/satiety/nausea

Medications in Functional Dyspepsia

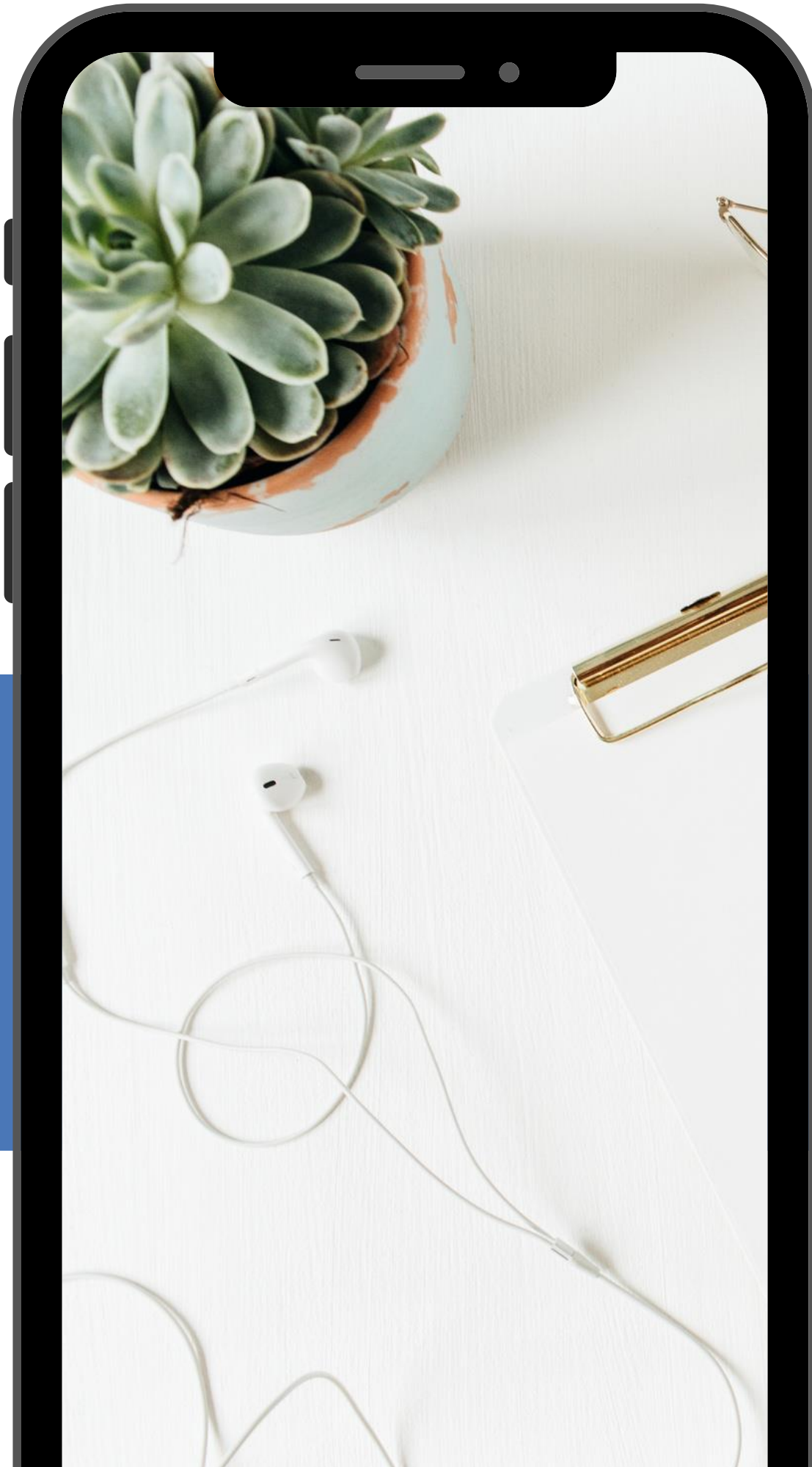
	GDH	CBT	MBSR	Any
Hyperalgesia, somatization & extraintestinal symptoms	Yes			Yes
Avoidance, hypervigilance		Yes		Yes
Pain catastrophizing, fear of symptoms, attentional bias	Yes	Yes	Yes	Yes
Sympathetic nervous system arousal	Yes	Yes	Yes	Yes
Visceral hypersensitivity	Yes			Yes

Gut-Brain Modulation



Food **Therapy?**

Can dietary protocols be
used in patients with
disordered eating?



Red Flags For Dietary Changes

- Lack of diet diversity (e.g., only eating a few foods)
- Elimination of food groups without substitution of replacement foods
- Restrictive eating behaviors including only eating home-cooked food
- Relying on liquid supplementation
- Self-directed diet changes without clear symptom benefit

Medical consequences:

- Weight loss
- Difficulty gaining weight
- Nutrient deficiencies
- Dependence on nutritional supplements
- Other physical markers potentially associated with poor nutrition (e.g., fatigue)
- Quality-of-life impairments (e.g., social eating difficulty)

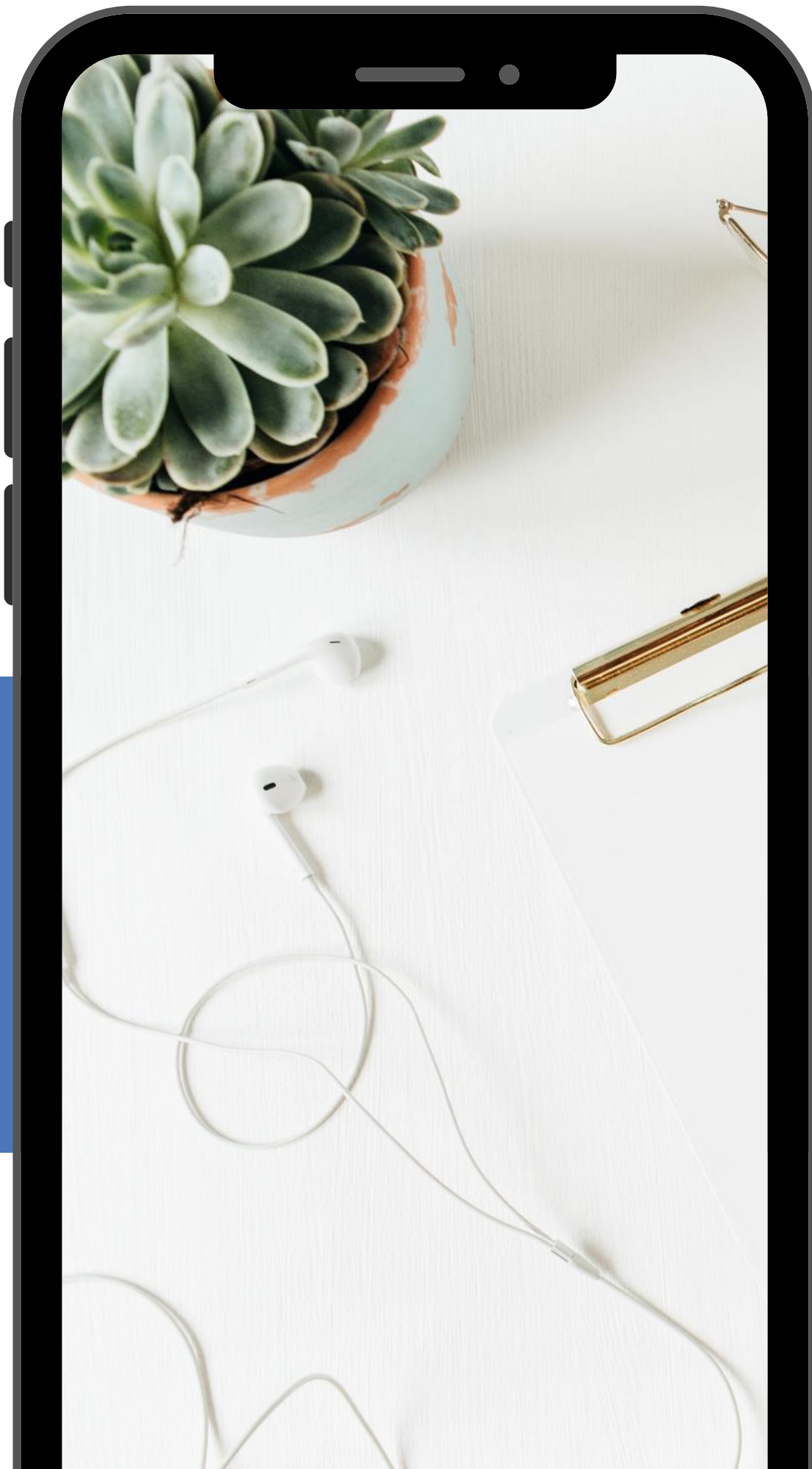
How to Handle Food Changes in Disorders of Gut Brain Interactions



- **Moderate to severe GI symptomatic patient with no concerns**
 - Follow normal 3 stage program
- **Mild GI symptoms or patient unlikely to comply with program strictly**
 - Simplified or mini version followed by simplified re-introduction and personalized plan
 - If partial response, can consider moving to full program
- **Children and older adults (avoiding over-restriction)**
 - Simplified or mini version followed by simplified re-introduction and personalized plan
 - If partial response, can consider moving to full program
- **GI symptomatic patients with high anxiety or likely to have a nocebo effect**
 - Expanding list of better tolerated foods to substitute for more likely to aggravate foods - slow time line
 - Then try challenge with less tolerated foods (can use smaller doses, non-consecutive days/blinded challenges)
- **GI symptomatic patients who have CI to dietary restrictions (disordered eating/eating disorder)**
 - Ensure nutritional adequacy, move to non-dietary therapy

If response is inadequate - abandon the dietary program. Ensure patients know there is NO reason to continue

Herbal options in **Dyspepsia**

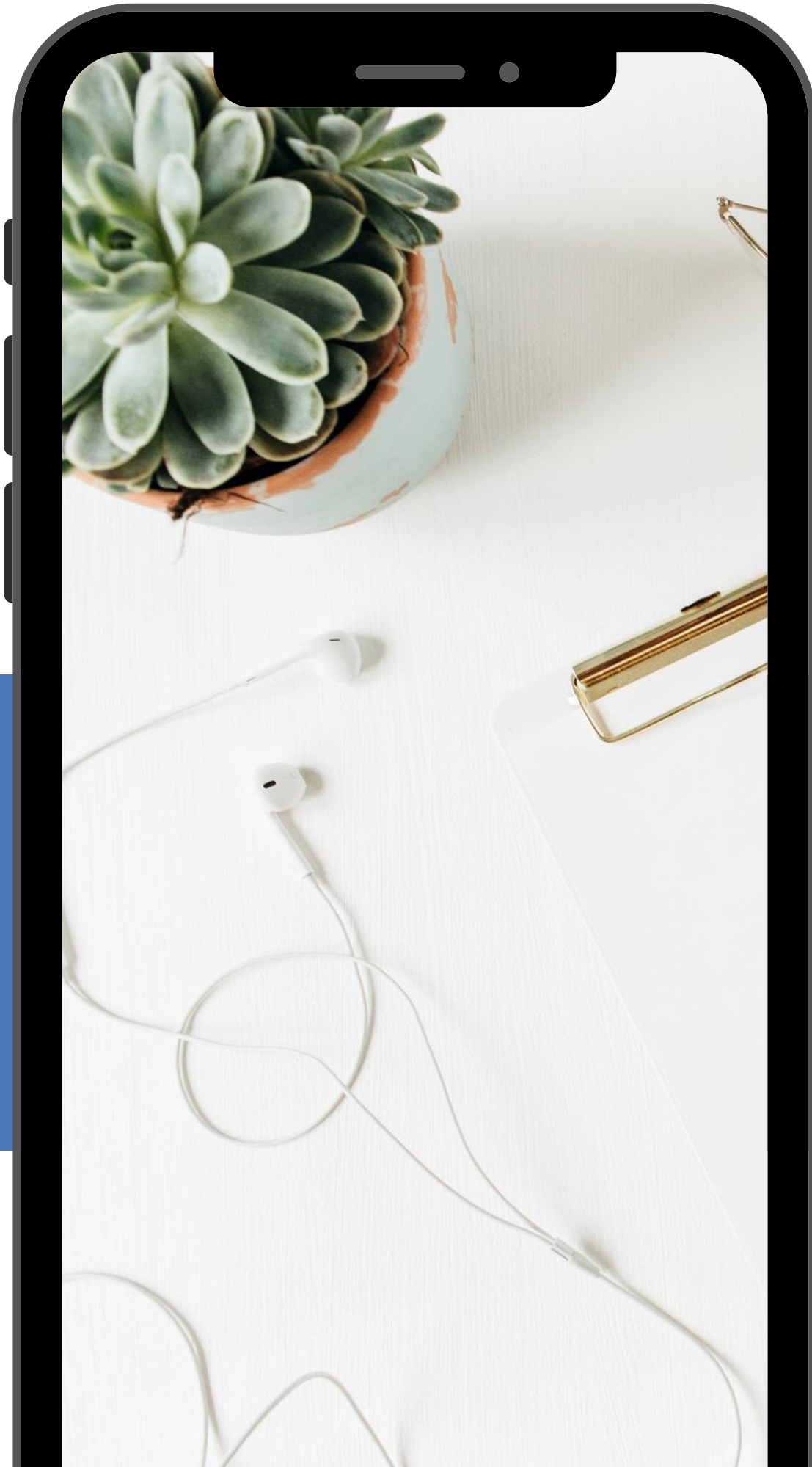
- Caraway/peppermint oil
- STW-5 (combination of herbs)
- Curcuma longa



	Studies	Global symptom improvement	Adverse events rate
STW5 (4-8 weeks)	5 studies, 814 participants, very low C of E	May moderately improve global symptoms of dyspepsia compared with placebo at 28 to 56 days	= to placebo
Caraway/ peppermint oil combo (4 weeks)	2 studies, 210 participants, moderate CoE  3 studies, 305 participants; moderate CoE	Large improvement in global symptoms of dyspepsia compared to placebo at four weeks (probably) + increase the improvement rate of global symptoms of dyspepsia	= to placebo
Curcuma longa (4 weeks)	2 studies, 110 participants; moderate CoE  1 study, 76 participants; low CoE	May moderately improve global symptoms of dyspepsia compared to placebo at four weeks + may increase the improvement rate of global symptoms of dyspepsia	= to placebo

Iron Deficiency **Treatment**

- Management of deficiency has to be a priority
- If not tolerated, look at iron infusions (use transferrin saturation as a backup justification)



Uses for IV iron in iron deficiency (Up to Date):

- Poor adherence or gastrointestinal side effects of oral iron
- Prefer to replete iron stores in one or two visits rather than over the course of several months
- Ongoing blood loss that exceeds the capacity of oral iron to meet needs (heavy uterine bleeding, mucosal telangiectasias)
- Anatomic or physiologic condition that interferes with oral iron absorption
- Coexisting inflammatory state that interferes with iron homeostasis



What would I do?

- Gut brain connection
 - Gut-directed hypnotherapy
 - Diaphragmatic breathing
 - GABA
- Food:
 - If unable to contemplate re-introduction of any foods, eating disorder focused psychologist - referral; enzyme, as needed
- Supplements to start:
 - Caraway/peppermint combo (with oregano oil) or STW-5
- Moderate dose iron supplementation with a small appropriate meal - and advocate for iron infusion
 - Mg (osmotic laxative) & psyllium fiber to help with constipation

Thanks for paying attention!

Do you need more help or resources?

Reach out at

drkimbretznd.com/practitioners

<https://drkimbretznd.thinkific.com/>

