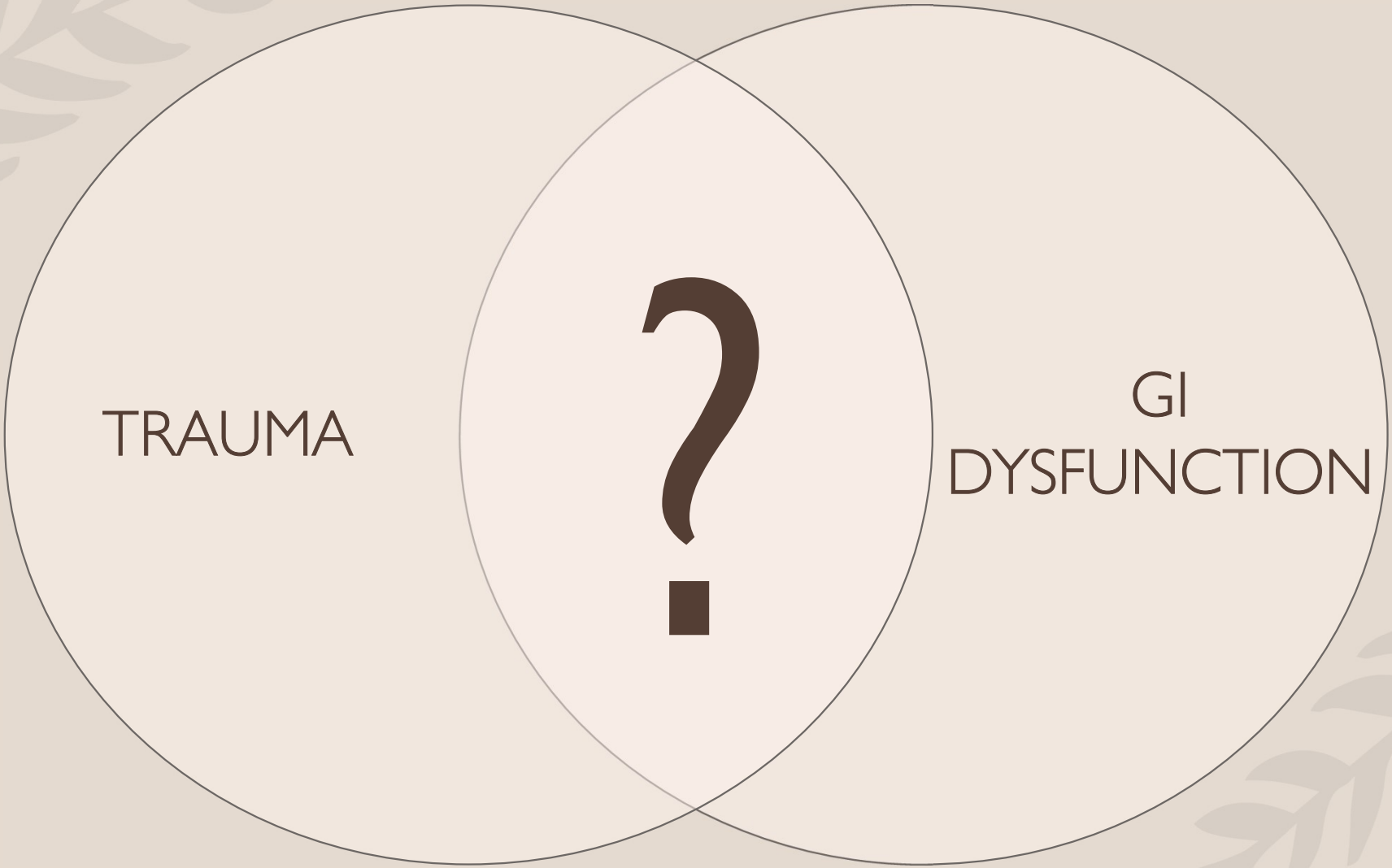
Trauma, Disordered Eating, and Gut Health:
a complex relationship

Erica Golden, RDN, IFNCP

2024 WIC Conference


TRAUMA
?
GI
DYSFUNCTION

agenda

What is trauma?

How are trauma, eating disorders, food insecurity, and gut health connected?

What is trauma-informed care?

How can we improve the gut health of clients with challenging psychosocial situations?

what is trauma?

DEFINING TRAUMA

"Individual trauma results from an **event**, series of events, or set of circumstances that is **experienced** by an individual as physically or emotionally harmful or life threatening and that has lasting adverse **effects** on the individual's functioning and mental, physical, social, emotional, or spiritual well-being."

trauma is not rare.

2017 data: 70.4% of individuals worldwide have experienced at least one type of traumatic event

- 35.7% experienced traumas that happened to a loved one (such as serious illness of a child)
- 34.3% accidents or injuries
- 34.1% unexpected or traumatic death of a loved one
- 22.9% physical violence
- 14% intimate partner or sexual violence
- 13.1% war-related events

Kessler RC, Aguilar-Gaxiola S, Alonso J, Benjet C, Bromet EJ, Cardoso G, et al. Trauma and PTSD in the WHO World Mental Health Surveys. Eur J Psychotraumatol (2017) 8(5):1353383. 10.1080/20008198.2017.1353383

the many faces of trauma

EMOTIONAL ABUSE

GRIEF & LOSS

SEXUAL ABUSE

NATURAL DISASTERS

WAR

MEDICAL TRAUMA

INTIMATE PARTNER VIOLENCE

HISTORICAL & INTERGENERATIONAL TRAUMA

adverse childhood events (ACEs)

ABUSE	Emotional abuse
	Physical abuse
	Sexual abuse
NEGLECT	Emotional neglect
	Physical neglect (including food restriction & food trauma)
HOUSEHOLD CHALLENGES	Incarceration of a household member
	Substance abuse in the household
	Not being raised by both biological parents
	Mental illness in the household
	Witnessing violence in the home
	Poverty, unstable housing & food insecurity

https://www.cdc.gov/violenceprevention/aces/ace-brfss.html

ACEs risk is higher for...

Individuals in populations that are already vulnerable:

- Women.
- Individuals from marginalized communities & certain communities of color.
  - Highest in indigenous populations in the United States
- Individuals from food-insecure households.

https://www.cdc.gov/violenceprevention/aces/fastfact.html

Adverse Childhood Experience Questionnaire for Adults

California Surgeon General's Clinical Advisory Committee

aces aware
SCREEN. TREAT. HEAL.

Our relationships and experiences—even those in childhood—can affect our health and well-being. Difficult childhood experiences are very common. Please tell us whether you have had any of the experiences listed below, as they may be affecting your health today or may affect your health in the future. This information will help you and your provider better understand how to work together to support your health and well-being.

Instructions: Below is a list of 10 categories of Adverse Childhood Experiences (ACEs). From the list below, please place a checkmark next to each ACE category that you experienced prior to your 18th birthday. Then, please add up the number of categories of ACEs you experienced and put the *total number* at the bottom.

1. Did you feel that you didn't have enough to eat, had to wear dirty clothes, or had no one to protect or take care of you?	☐
2. Did you lose a parent through divorce, abandonment, death, or other reason?	☐
3. Did you live with anyone who was depressed, mentally ill, or attempted suicide?	☐
4. Did you live with anyone who had a problem with drinking or using drugs, including prescription drugs?	☐
5. Did your parents or adults in your home ever hit, punch, beat, or threaten to harm each other?	☐
6. Did you live with anyone who went to jail or prison?	☐
7. Did a parent or adult in your home ever swear at you, insult you, or put you down?	☐
8. Did a parent or adult in your home ever hit, beat, kick, or physically hurt you in any way?	☐
9. Did you feel that no one in your family loved you or thought you were special?	☐
10. Did you experience unwanted sexual contact (such as fondling or oral/anal/vaginal intercourse/penetration)?	☐
Your ACE score is the total number of checked responses	

Do you believe that these experiences have affected your health? ◯ Not Much ◯ Some ◯ A Lot

PART 2:

1. Have you ever seen, heard, or been a victim of violence in your neighborhood, community or school?
   (for example, targeted bullying, assault or other violent actions, war or terrorism)
2. Have you experienced discrimination?
   (for example, being hassled or made to feel inferior or excluded because of their race, ethnicity, gender identity, sexual orientation, religion, learning differences, or disabilities)
3. Have you ever had problems with housing?
   (for example, being homeless, not having a stable place to live, moved more than two times in a six-month period, faced eviction or foreclosure, or had to live with multiple families or family members)
4. Have you ever worried that you did not have enough food to eat or that food would run out before you or your parent/caregiver could buy more?
5. Have you ever been separated from your parent or caregiver due to foster care, or immigration?
6. Have you ever lived with a parent/caregiver who had a serious physical illness or disability?
7. Have you ever lived with a parent or caregiver who died?
8. Have you ever been detained, arrested or incarcerated?
9. Have you ever experienced verbal or physical abuse or threats from a romantic partners?
   (for example, a boyfriend or girlfriend)

https://www.acesaware.org/wp-content/uploads/2022/07/ACE-Questionnaire-for-Adults-Identified-English-rev.7.26.22.pdf
https://www.acesaware.org/pdf_wrapper/pearls-tool-teen-self-report-de-identified-english/

Brief Trauma Questionnaire

The following questions ask about events that may be extraordinarily stressful or disturbing for almost everyone. Please circle "Yes" or "No" to report what has happened to you.

If you answer "Yes" for an event, please answer any additional questions that are listed on the right side of the page to report: (1) whether you thought your life was in danger or you might be seriously injured; and (2) whether you were seriously injured.

If you answer "No" for an event, go on to the next event.

Event	Has this ever happened to you?	If the event happened, did you think your life was in danger or you might be seriously injured?	If the event happened, were you seriously injured?
1. Have you ever served in a war zone, or have you ever served in a noncombat job that exposed you to war-related casualties (for example, as a medic or on graves registration duty?)	No Yes	No Yes	No Yes
2. Have you ever been in a serious car accident, or a serious accident at work or somewhere else?	No Yes	No Yes	No Yes
3. Have you ever been in a major natural or technological disaster, such as a fire, tornado, hurricane, flood, earthquake, orchemical spill?	No Yes	No Yes	No Yes
4. Have you ever had a life-threatening illness such as cancer, a heart attack, leukemia, AIDS, multiple sclerosis, etc.?	No Yes	No Yes	*N/A*
5. Before age 18, were you ever physically punished or beaten by a parent, caretaker, or teacher so that: you were very frightened; or you thought you would be injured; or you received bruises, cuts, welts, lumps or other injuries?	No Yes	No Yes	No Yes
6. Not including any punishments or beatings you already reported in Question 5, have you ever been attacked, beaten, or mugged by anyone, including friends, family members or strangers?	No Yes	No Yes	No Yes
7. Has anyone ever made or pressured you into having some type of unwanted sexual contact? Note: By sexual contact we mean any contact between someone else and your private parts or between you and some else's private parts	No Yes	No Yes	No Yes
8. Have you ever been in any other situation in which you were seriously injured, or have you ever been in any other situation in which you feared you might be seriously injured or killed?	No Yes	*N/A*	No Yes
9. Has a close family member or friend died violently, for example, in a serious car crash, mugging, or attack?	No Yes	*N/A*	No Yes
10. Have you ever witnessed a situation in which someone was seriously injured or killed, or have you ever witnessed a situation in which you feared someone would be seriously injured or killed?	No Yes	*N/A*	*N/A*

outcomes of trauma

MENTAL HEALTH

- PTSD
- Depression
- Anxiety
- Panic disorders
- Eating disorders
- Substance abuse
- Suicide

PHYSICAL HEALTH

- Stroke
- Heart disease
- Type 2 diabetes
- Liver disease
- Severe obesity
- Cancer
- COPD
- Alzheimer's disease
- IBS & IBD

INTERGENERATIONAL HEALTH

- Epigenetic changes
- Psychological effects
- Familial financial wellbeing
- …and probably a lot more.

cdc.gov/violenceprevention/aces/fastfact.html; centerforyouthwellness.org/health-impacts/; pubmed.ncbi.nlm.nih.gov/33433790/; https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5977074/

food-related trauma

Adverse food-related experiences can include:

- Unreliable or unpredictable meals
- Caregiver restriction and controlling food access/intake
- Body shaming
- Loss of food traditions
- Using food to punish, reward, or manipulate
- Shame, bias, or stigma associated with use of food assistance programs

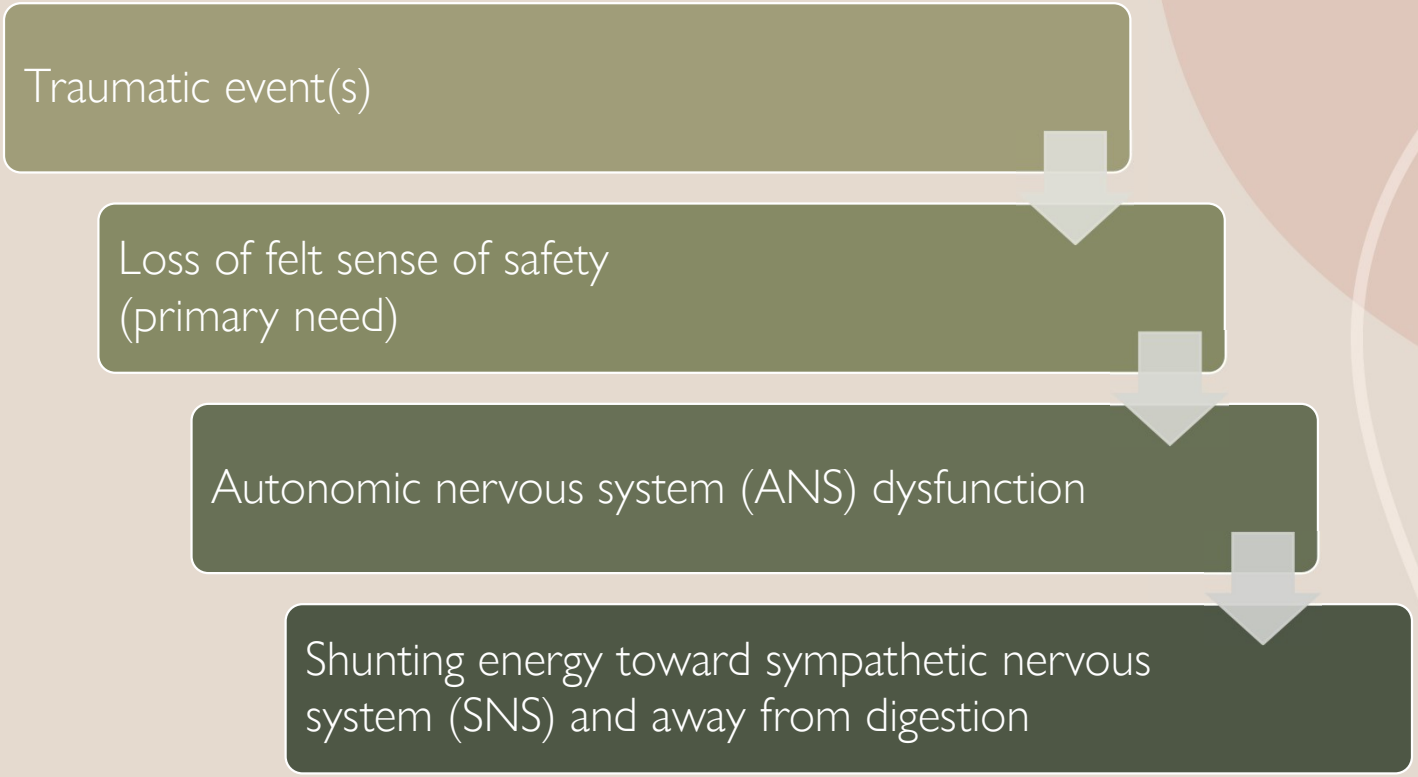
food-related outcomes

Dietary behaviors that can result from adversity, including food-related adversity:

- Hoarding food, binge eating, compulsive overeating
- High fat, sugar, or sodium diets
- Reliance on convenience foods
- Eating disorders or food addiction
- Unable to tolerate certain food characteristics
- Focusing on short-term needs rather than long-term goals
- Difficulty prioritizing budgeting or planning for the future

how are trauma, eating disorders, and gut health connected?

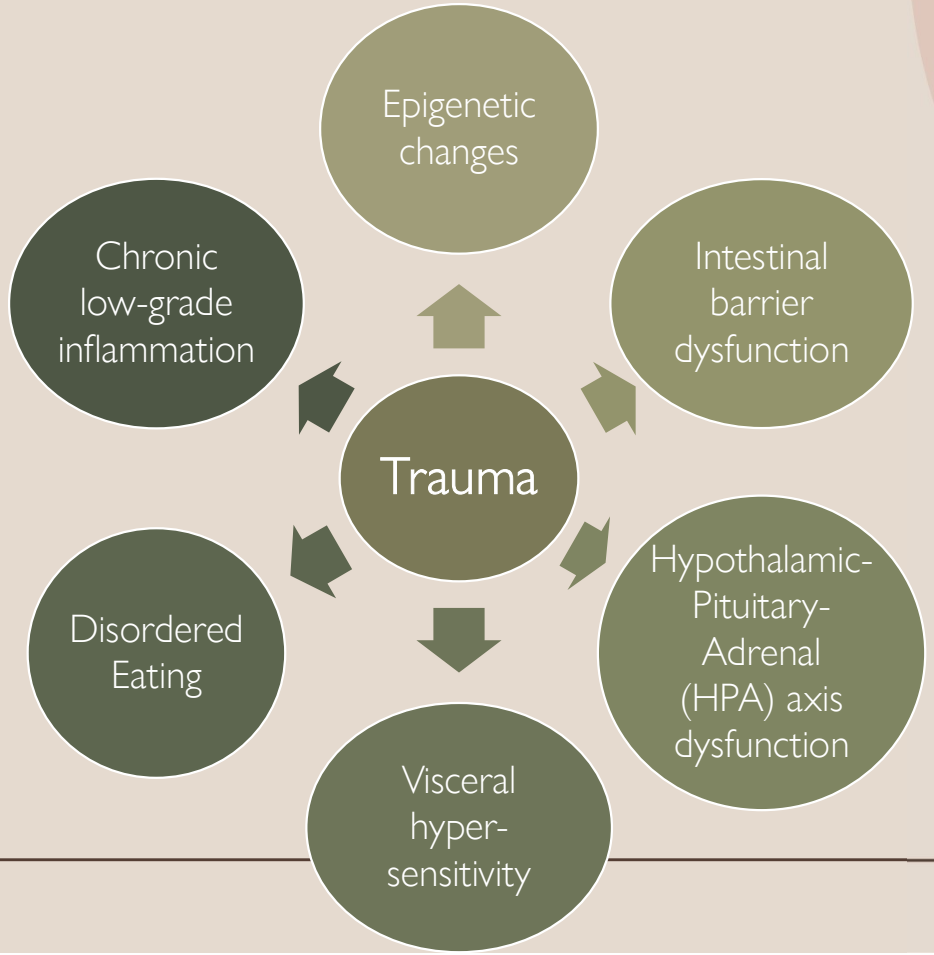
trauma, post-traumatic stress, & digestion



gut-brain axis dysfunction?

- Post-traumatic stress symptoms affect >1 in 5 people with a chronic GI condition
- Where does the dysfunction lie?
  - In the gut?
  - In the brain?
  - Both?
  - The communication network between the two?
- Food for thought… when the body's response makes sense, is the **response** dysfunctional, or is the **environment** dysfunctional?

gut-brain axis and ACEs



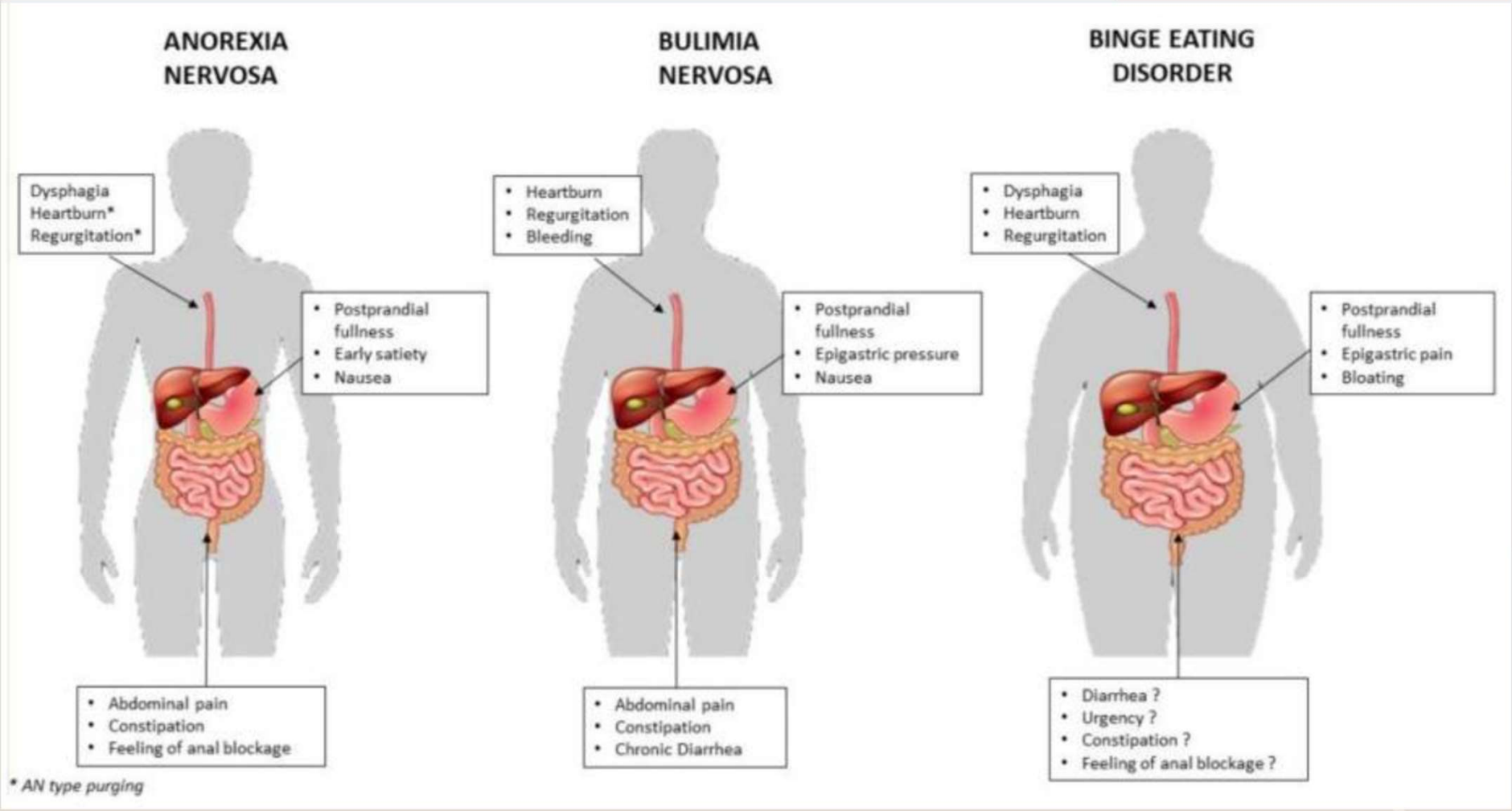
DISORDERED EATING & GUT-BRAIN AXIS DYSFUNCTION

"A large majority (88.2–95.5%) of individuals with eating disorders reported at least one DGBI [disorder of the gut-brain interaction] and 34.8–48.7% reported three or more DGBI. Of the DGBI categories, functional bowel disorders were the most commonly endorsed category, and of the individual DGBI, irritable bowel syndrome was the most frequently reported (43.9–58.8%)."

Wiklund et al, 2021

eating disorders & GI dysfunction

- Trauma as a central cause of both
- Overlapping symptoms
- Disordered eating frequently correlated with gastroparesis, functional dyspepsia, and functional constipation
  - Studies suggest that in most cases, these disorders are functional rather than structural
- Bidirectional relationship?
  - Eating habits of individuals with eating disorders likely contributes to development of GI dysfunction (chronic restriction, vomiting, laxative abuse, malnutrition → motility impairments)
  - Desire to avoid unpleasant GI symptoms, especially in the context of visceral hypersensitivity, may lead to problematic eating habits (e.g. ARFID)



https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6950592/

caring for psychosocially complex patients

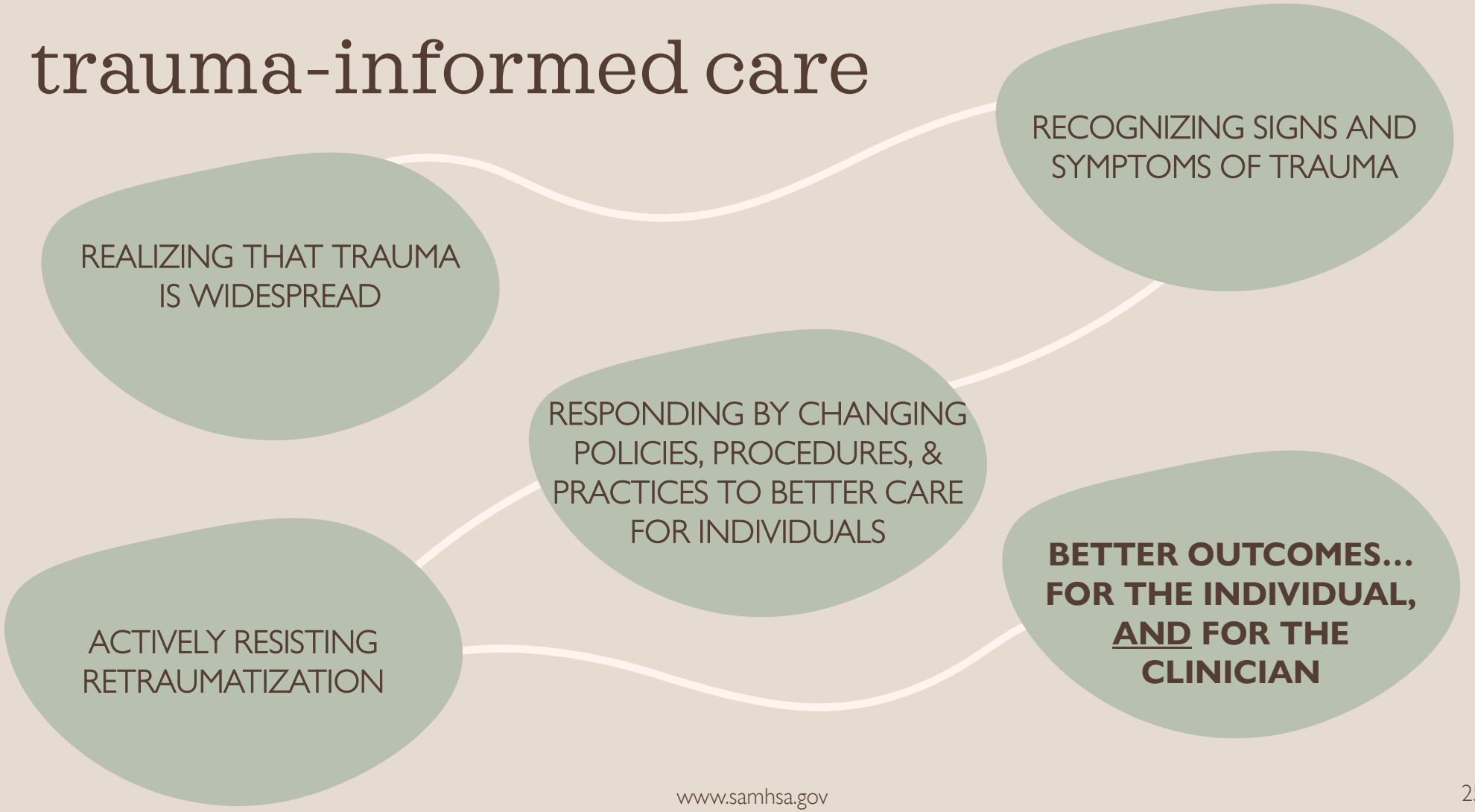
what is trauma-informed care?

A TRANSFORMATION…

Traditional medical approach:
"What's wrong with you?"

Trauma-informed approach:
"What happened to you?"

trauma-informed care



trauma-informed care

- "First, do no harm"
- Traumatic memories are wired differently than ordinary memories, and small suggestions of the event can often call up the emotions of the event itself.
  - Invasion of personal space
  - Words and actions that have sexual connotations
  - Loud or sudden noises and movements
- Support sense of safety, autonomy, self-efficacy
- The patient-provider relationship is key to the healing process – strive to make every interaction therapeutic

guiding principles

https://www.cdc.gov/orr/infographics/6_principles_trauma_info.htm

what does trauma-informed care look like in practice?

application: trauma-informed language

SIMPLE

- Easy to understand
- Avoids medical jargon
- Accommodates patients who speak other languages

CLINICAL

- Generally avoids use of imagery; you never know what might be triggering
- Avoids all possible sexual connotation
- Careful about self-disclosure
- Word choice is professional, not personal
  - Use "the" instead of "your"
  - Avoid telling patients to do XYZ "for me"

RESPECTFUL

- Minimizes power differential between patient and provider
- Calls the patient by their preferred name
- Doesn't "talk down" to the patient or treat them like a child
- Finds out their level of knowledge on the subject and starts from there

https://www.mededportal.org/doi/10.15766/mep_2374-8265.10799

application: the nutrition-focused physical exam

BEFORE

- Check for non-verbal signs of discomfort or fear
- Check your own non-verbal cues
- Set an agenda
- Make it standard
- Identify concerns
- Ask about comfort
- Offer chaperone

DURING

- Attend to modesty
- Introduce exam components
- Explain why
- Ask permission
- Stay within eyesight
- Respect personal space
- Use simple, clinical language
  - Body parts are "the" instead of "your"
  - "I will examine" vs. "I want to look at"
- Check in
- Use professional touch
- Be efficient

AFTER

- Express thanks
- Discuss results
- Ask for questions ("What questions do you have?" vs. "Do you have any questions?")

https://www.mededportal.org/doi/10.15766/mep_2374-8265.10799

application: trauma-informed nutrition education

RELATIONSHIP WITH FOOD

- A focus on balanced nutrition, avoiding labeling foods as "good" or "bad"
- Eating culturally relevant, enjoyable food, with others when possible
- Finding meaningful ways to engage with food production and preparation

RELATIONSHIP WITH BODY

- Encouraging embodiment through mindful practices, including mindful eating
- Engaging in enjoyable movement
- Working toward gratitude for the body (functional vs. appearance)

RELATIONSHIP WITH OTHERS

- Offer group education with plenty of time for patients to share their experiences, challenges, and wisdom
- Foster ability to enjoy food in community when possible
- Empathetic, active listening
- Proper amount of self-disclosure—portray yourself (clinician) as human
- Refer to trusted mental health professionals

how can we help clients in challenging psychosocial situations improve their gut health?

treating GI dysfunction in context of trauma/disordered eating risk

- Balancing act…
  - stress, eating disorder risk, and/or problematic relationship with food
  - vs.
  - GI symptoms that are affecting QOL
- Screening for disordered eating
- Educating in a balanced way
- Challenging beliefs
- Liberalizing as soon as possible

gentle nutrition

- Focus on nutritional adequacy (what to **increase**)
  - Educate on ways that eating disorder behaviors and inadequate nutrition can worsen digestive symptoms
- Give context to recommendations
  - Usually, we're not expecting 100% compliance except with a food allergy or Celiac disease
  - What portions are appropriate? What frequency? Why?
- Avoid labeling foods as "good" or "bad," but rather talk about them functionally
  - This may include talking about the biological basis for digestive symptoms, with language suited to the educational level of the patient
- "Gain-framed" nutritional messaging rather than fear-based
  - A focus on short-term QOL gains may be most effective in this population

gentle nutrition

- Focus on getting into the kitchen and sitting down at a table to eat with others – building a healthier relationship with food and community
  - Cultural and family foods
  - Don't forget the basics – building a balanced meal, cooking skills
  - Mindful and intuitive eating skills

simple starting points

- Are meals big enough?
- Are meals frequent enough?
- Are there gaps between eating, or constant grazing?
- Are there enough plant foods with plenty of fiber?
- Is fluid intake adequate?
- Is there adequate dietary variety to provide needed nutrients?
  - E.g. magnesium, zinc, vitamin D, vitamin C, vitamin A, B vitamins

simple starting points

- Are there any dietary supplements that may carry digestive side effects?
  - E.g. magnesium, iron, calcium, fiber supplements
- Are there any obvious potential trigger foods?
  - E.g. coffee, fiber bars with inulin, sugar-free candies, fruit juices or smoothies, lactose, high-fat meats or fried foods, alcohol, garlic/onions, etc…
  - Consider gentler substitutions such as green bananas instead of ripe ones, lactose-free products, maple syrup instead of honey, scallions instead of onions…
- If more is needed, perhaps we consider other gentle additions, such as:
  - Functional food choices (oats, prunes, kiwis, bone broth, etc.)
  - Probiotics (supplement or food-based – if supplement, tailor to their symptoms)
  - Fiber supplements (PHGG, methylcellulose, acacia, psyllium)

making the right referrals

- Gastroenterologist (especially if red flags are present)
- Pelvic floor physical therapy
- Therapy or counseling
- Eating disorder specialist team (including **at least** a dietitian and therapist in conjunction with their PCP or psychiatrist)

embodiment & gentle movement

- Embodiment practices like mindful movement (yoga particularly well-studied), mindful eating, and deep breathing are powerful tools in managing gut-brain axis dysfunction & visceral hypersensitivity
- May help them focus on the body as a whole rather than hyper-focus on the individual parts that hurt (such as the GI tract)
- Building gratitude, self-compassion, empowerment, sense of wholeness
- Don't teach people to ignore parts of their body, teach them to put it in context
- Variety of approaches, including:
  - Breathing through discomfort
  - Leaning into the pain – naming and interpreting
  - Listening to the body – what does it need? What movements/positions/foods hurt? What helps?

embodiment: the experiential and lived body

> the mandate of health-care professionals in particular is to support the patient to learn to give voice back to the body, teaching the patient to listen, feel, notice, and thus to live wholly.

the reciprocal benefits of better gut health

gut health and brain health

- Because of the close links between health of the digestive tract and health of the brain, working on improving GI health can play a role in…
  - improving resilience to trauma
  - decreasing neuroinflammation
  - lessening the experience of mental health symptoms.

RDs in trauma-informed care?

Dietitians have a unique opportunity to recognize trauma and help to change outcomes. We do this by:

- Recognizing and acknowledging trauma
- Addressing bias, both conscious and unconscious
- Practicing cultural humility
- Focusing on holistic wellbeing and measures of health other than weight/BMI
- Acknowledging the strengths and skills of clients, and acknowledging them as the expert in their own lives
- Recognize that some nutrition interventions may be triggering, and that some kinds of behavior change may be out of reach
- Focus on building a therapeutic relationship with the client and on helping them build a healthy relationship with food, with their bodies, and with their communities

trauma-informed care: further learning

Infographic to pin on your bulletin board:
Trauma-Informed Nutrition (pacesconnection.com)

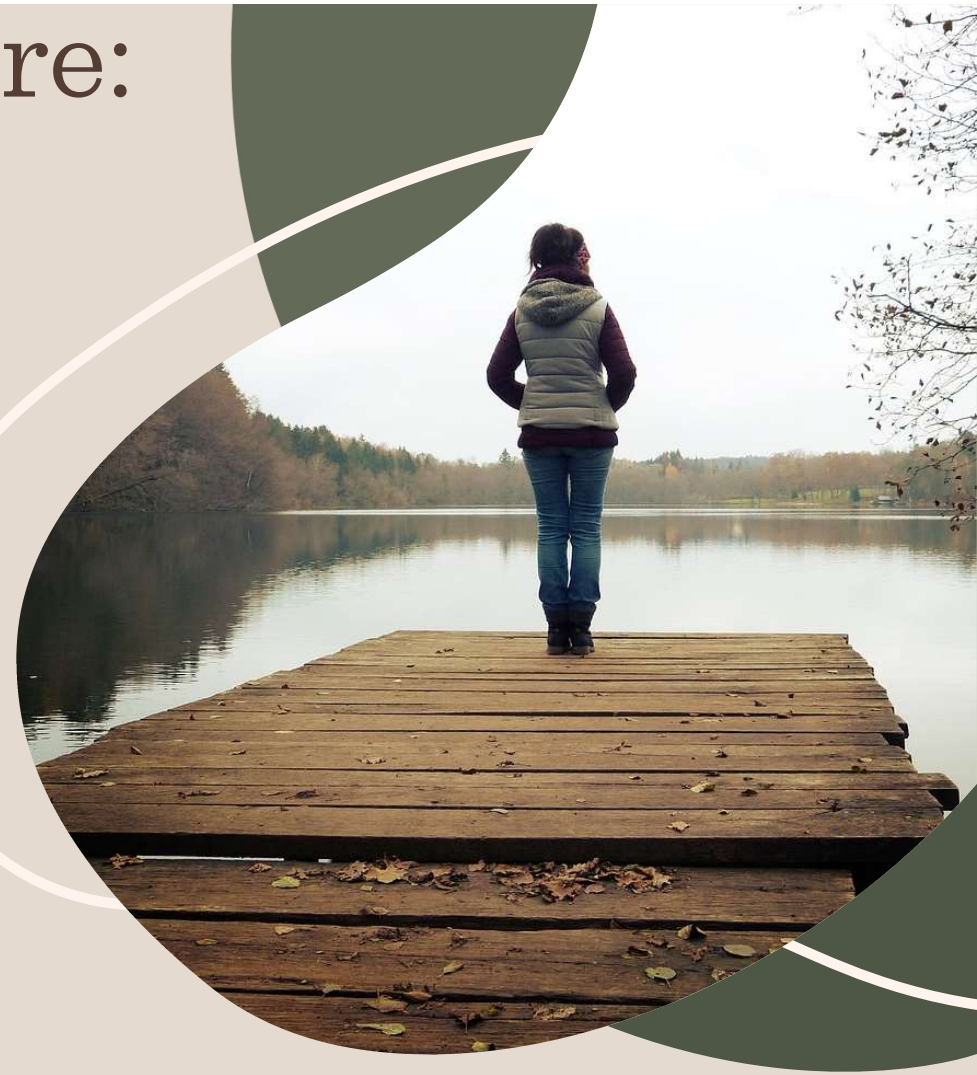
Free Toolkit: Fostering Resilience and Recovery: a Change Package for Advancing Trauma-Informed Primary Care (thenationalcouncil.org)

Books:

- The Body Keeps the Score: Brain, Mind, and Body in the Healing of Trauma by Bessel van der Kolk (2015)
- Trauma and Recovery: the Aftermath of Violence—from Domestic Abuse to Political Terror by Judith Herman, MD (2022)

Articles specific to food-related trauma:

- Silliman Ciohen, R., Moore, J. L., & Barron, C. E. (n.d.). Food Insecurity and Child Maltreatment: A Quality Improvement Project. Rhode Island Medical Journal. http://www.rimed.org/rimedicaljournal/2018/09/2018-09-31-cont-cohen.pdf
- Vaughn, M., Salas-Wright, C., Naeger, S., Huang, J., & Piquero, A. (2016). Childhood Reports of Food Neglect and Impulse Control Problems and Violence in Adulthood. International Journal of Environmental Research and Public Health, 13(4), 389. doi: 10.3390/ijerph13040389
- Wonderlich, S. A., Crosby, R. D., Mitchell, J. E., Thompson, K. M., Redlin, J., Demuth, G., Haseltine, B. (2001). Eating disturbance and sexual trauma in childhood and adulthood. International Journal of Eating Disorders, 30(4), 401–412. doi: 10.1002/eat.1101



references

- Avila JT, Park KT, Golden NH. Eating disorders in adolescents with chronic gastrointestinal and endocrine diseases. *Lancet Child Adolesc Health.* 2019;3(3):181-189. doi:10.1016/S2352-4642(18)30386-9
- Brown TA, Reilly EE, Murray HB, Perry TR, Kaye WH, Wierenga CE. Validating the visceral sensitivity index in an eating disorder sample. *Int J Eat Disord.* 2021;54(6):986-994. doi:10.1002/eat.23471
- Burton Murray H, Riddle M, Rao F, McCann B, Staller K, Heikemper M, Zia J. Eating disorder symptoms, including avoidant/restrictive food intake disorder, in patients with disorders of gut-brain interaction. *Neurogastroenterology & Motility.* 2021;34(8). https://doi.org/10.1111/nmo.14258
- California Department of Public Health and California Department of Social Services: Essentials for Childhood Initiative. Trauma-Informed Nutrition. June 2020. Available at: https://www.pacesconnection.com/g/california-aces-action/
- Camilleri M, Coulie B, Tack JF. Visceral hypersensitivity: facts, speculations, and challenges. *Gut.* 2001;48:125-131.
- Center for Youth Wellness. Childhood adversity increases risk for long-term health and behavioral issues. Accessed 3 Nov 2023. Available at: centerforyouthwellness.org/health-impacts/
- Centers for Disease Control and Prevention. 6 Principles for Trauma-Informed Care. Accessed 3 Nov 2023. Available at: https://www.cdc.gov/orr/infographics/6_principles_trauma_info.htm
- Centers for Disease Control and Prevention. ACEs Fast Facts. Accessed 3 Nov 2023. Available at: https://www.cdc.gov/violenceprevention/aces/fastfact.html
- Centers for Disease Control and Prevention. Behavioral Risk Factor Surveillance System ACE Data. Accessed 3 Nov 2023. Available at: https://www.cdc.gov/violenceprevention/aces/ace-brfss.html

references

- Dothel G, Barbaro MR, Di Vito A, et al. New insights into irritable bowel syndrome pathophysiological mechanisms: contribution of epigenetics. *J Gastroenterol.* 2023;58(7):605-621. doi:10.1007/s00535-023-01997-6
- Elisseou S, Puranam S, Nandi M. A novel, trauma-informed physical examination curriculum. *Med Educ.* 2018;52(5):555-556.
- Ford, AC, Harris, LA, Lacy, BE, Quigley, EMM, Moayyedi, P. Systematic review with meta-analysis: the efficacy of prebiotics, probiotics, synbiotics and antibiotics in irritable bowel syndrome. *Aliment Pharmacol Ther.* 2018; 48: 1044–1060. https://doi.org/10.1111/apt.15001
- Fuentes IM, Christianson JA. The Influence of Early Life Experience on Visceral Pain. *Front Syst Neurosci.* 2018;12:2. Published 2018 Jan 26. doi:10.3389/fnsys.2018.00002
- Glynn H, Möller SP, Wilding H, Apputhurai P, Moore G, Knowles SR. Prevalence and Impact of Post-traumatic Stress Disorder in Gastrointestinal Conditions: A Systematic Review. *Dig Dis Sci.* 2021;66(12):4109-4119.
- Gortat M, Samardakiewicz M, Perzyński A. Orthorexia nervosa - a distorted approach to healthy eating. *Psychiatr Pol.* 2021;55(2):421-433. doi:10.12740/PP/125387
- Harding K, Simpson T, Kearney DJ. Reduced Symptoms of Post-Traumatic Stress Disorder and Irritable Bowel Syndrome Following Mindfulness-Based Stress Reduction Among Veterans. *J Altern Complement Med.* 2018;24(12):1159-1165. doi:10.1089/acm.2018.0135
- Jagielski CH, Chey WD, Riehl ME. Influence of trauma on clinical outcomes, quality of life and healthcare resource utilization following psychogastroenterology intervention. *J Psychosom Res.* 2021;146:110481. doi:10.1016/j.jpsychores.2021.110481
- Kessler RC, Aguilar-Gaxiola S, Alonso J, Benjet C, Bromet EJ, Cardoso G, et al. Trauma and PTSD in the WHO World Mental Health Surveys. *Eur J Psychotraumatol.* 2017;8(5):1353383.
- Lin JA, Woods ER, Bern EM. Common and Emergent Oral and Gastrointestinal Manifestations of Eating Disorders. *Gastroenterology & Hepatology.* 2021;17(4).

references

- Manning LP, Tuck CJ, Biesiekierski JR. The lived experience of irritable bowel syndrome: A focus on dietary management. *The Royal Australian College of General Practitioners*. 2022;51(6):295-400
- McBridge HL, Kwee JL. *Embodiment and Eating Disorders: Theory, Research, Prevention and Treatment*. Routledge, July 18, 2018 – Psychology – 392 pgs.
- Merrick MT, Ford DC, Ports KA, Guinn AS. Prevalence of Adverse Childhood Experiences from the 2011-2014 Behavioral Risk Factor Surveillance System in 23 States. *JAMA Pediatr.* 2018;172(11):1038-1044.
- Morgan JF, Reid F, Lacey JH. The SCOFF questionnaire: a new screening tool for eating disorders. *West J Med*. 2000;172(3):164-165. doi:10.1136/ewjm.172.3.164
- Naimi, S., Viennois, E., Gewirtz, A.T. *et al.* Direct impact of commonly used dietary emulsifiers on human gut microbiota. *Microbiome*. 2021;9(66). https://doi.org/10.1186/s40168-020-00996-6
- Peters SL, Yao CK, Philpott H, Yelland GW, Muir JG, Gibson PR. Randomised clinical trial: the efficacy of gut-directed hypnotherapy is similar to that of the low FODMAP diet for the treatment of irritable bowel syndrome. *Aliment Pharmacol Ther*. 2016;44(5):447-459. doi:10.1111/apt.13706
- Santonicola A, Gagliardi M, Guarino MPL, Siniscalchi M, Ciacci C, Iovino P. Eating Disorders and Gastrointestinal Diseases. *Nutrients*. 2019;11(12):3038. Published 2019 Dec 12. doi:10.3390/nu11123038
- Scarlata K, Catsos P, Smith J. From a dietitian's perspective, diets for irritable bowel syndrome are not one size fits all. *Clinical Gastroenterology and Hepatology.* 2020;18(3):543-545
- Silliman Ciohen R, Moore JL, Barron CE. Food Insecurity and Child Maltreatment: A Quality Improvement Project. *Rhode Island Medical Journal*. (n.d.). http://www.rimed.org/rimedicaljournal/2018/09/2018-09-31-cont-cohen.pdf

references

- Stanculete MF, Chiarioni G, Dumitrascu DL, Dumitrascu DI, Popa SL. Disorders of the brain-gut interaction and eating disorders. *World J Gastroenterol*. 2021;27(24):3668-3681. doi:10.3748/wjg.v27.i24.3668
- Substance Abuse and Mental Health Services Administration. SAMHSA's Concept of Trauma and Guidance for a Trauma-Informed Approach. HHS Publication No. (SMA) 14-4884. Rockville, MD: SAMHSA, 2014.
- Vaughn M, Salas-Wright C, Naeger S, Huang J, Piquero A. Childhood Reports of Food Neglect and Impulse Control Problems and Violence in Adulthood. *International Journal of Environmental Research and Public Health*. 2016;13(4):389.
- Videlock EJ, Adeyemo M, Licudine A, et al. Childhood trauma is associated with hypothalamic-pituitary-adrenal axis responsiveness in irritable bowel syndrome. *Gastroenterology*. 2009;137(6):1954-1962. doi:10.1053/j.gastro.2009.08.058
- Wansink B, Pope L. When do gain-framed health messages work better than fear appeals? *Nutrition Reviews*. 2015;73(1):4–11. https://doi.org/10.1093/nutrit/nuu010
- Werlang ME, Sim LA, Lebow JR, Lacy BE. Assessing for Eating Disorders: A Primer for Gastroenterologists. *The American Journal of Gastroenterology*. 2021;116(1):68-76.
- Wiklund CA, Rania M, Kuja-Halkola R, Thornton LM, Bulik CM. Evaluating disorders of gut-brain interaction in eating disorders. *International Journal of Eating Disorders: Special Issue: Eating Disorders and Their Intersection with Gastrointestinal Symptoms*. 2021;54(6). https://doi.org/10.1002/eat.23527
- Wonderlich SA, Crosby RD, Mitchell JE, Thompson KM, Redlin J, Demuth G, Haseltine B. Eating disturbance and sexual trauma in childhood and adulthood. *International Journal of Eating Disorders*. 2001;30(4):401–412.

references

- Wrenn G, Briner S, Fallot R, Jacobs P, Knight T, Little V, Machtinger E, McCaw B, Perez A, Sockalignam S, Wise S. Fostering Resilience and Recovery: a Change Package for Advancing Trauma-Informed Primary Care. Published 14 Dec 2019.
- Youssef NA, Lockwood L, Su S, Hao G, Rutten BPF. The Effects of Trauma, with or without PTSD, on the Transgenerational DNA Methylation Alterations in Human Offsprings. *Brain Sci*. 2018;8(5):83. Published 2018 May 8. doi:10.3390/brainsci8050083
- Yuan Y, Wang X, Huang S, Wang H, Shen G. Low-level inflammation, immunity, and brain-gut axis in IBS: unraveling the complex relationships. *Gut Microbes*. 2023;15(2):2263209. doi:10.1080/19490976.2023.2263209

thank you

Erica Golden, RDN, LD, IFNCP
erica@nourishedmindnutrition.com
www.NourishedMindNutrition.com

Instagram: @nourishedmindnutrition
Facebook: @nourishedmindnutritionRDN
LinkedIn: @ericagoldenRDN