Functional Abdominal Pain: Exploring Hypnotherapy and the Power of the Placebo Effect?

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History

- 10 y.o. boy, developmentally normal
- Periumbilical abdominal pain every day with radiation to the epigastric region for the past 6 months
- Pain wax and weans, most of the time crampy, sometimes wakes him up at night
- Infrequent defecation with hard stools
- No influence of meals
- Tried “everything”
- Missing school

Irritable bowel syndrome

Must include *all* of the following for at least 2 months before diagnosis:

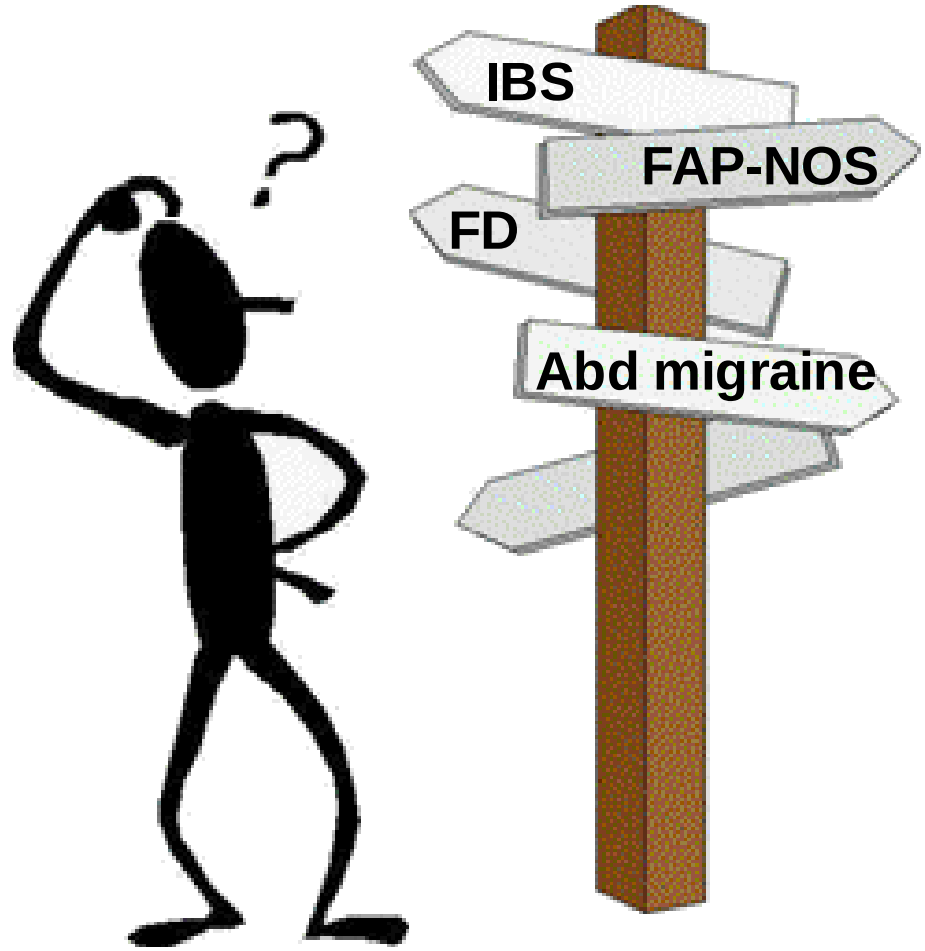
- **Abdominal pain at least 4 days/month associated with one or more of the following:**
    - **a. Related to defecation**
    - **b. A change in frequency of stool**
    - **c. A change in form (appearance) of stool**

- **In children with constipation, pain does not resolve with resolution of constipation (children in whom the pain resolves have functional constipation, not IBS)**

- **Pediatric IBS subtypes reflecting predominant stool pattern (IBS-C, IBS-D, IBS with constipation and diarrhea, and unspecified IBS)**

Hyams JS, et al. Gastroenterology 2016

What about Rome?

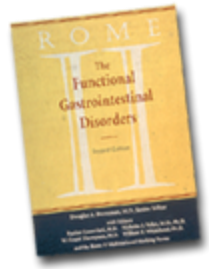


History of Rome Criteria

1990
Rome
Classification

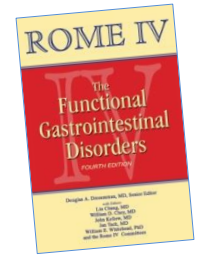
1994
Rome I
book

1989
Pre-Rome
IBS Criteria

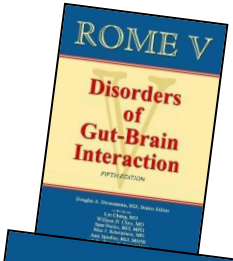


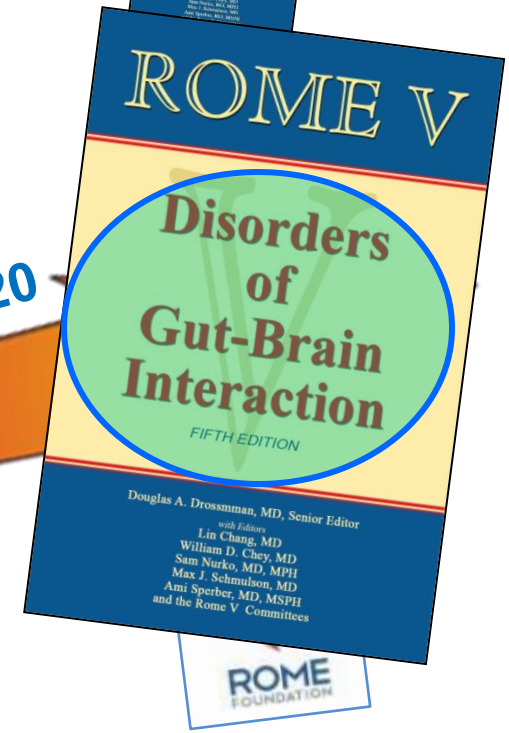
Rome II
2000

Rome III
2006



Rome IV
2016





2026
Gastro-
enterology

1980-1984
Epidemiology
studies

1978 1980 1985 1990 1995 2000 2005 2010 2015 2020

Manning
Criteria

1984
Kruis
Criteria

Roma 88

1999
Gut

2006
Gastro-
enterology

2016
Gastro-
enterology

Children

Functional Disorders: children and adolescents
Disorders of Gut-Brain Interaction (Rome V)

H1. Functional nausea and vomiting disorders

- **H1a. Cyclic vomiting syndrome**
- **H1b. Functional nausea and functional vomiting**
- **H1c. Rumination syndrome**
- **H1d. Aerofagia**

H2. Functional abdominal pain disorders

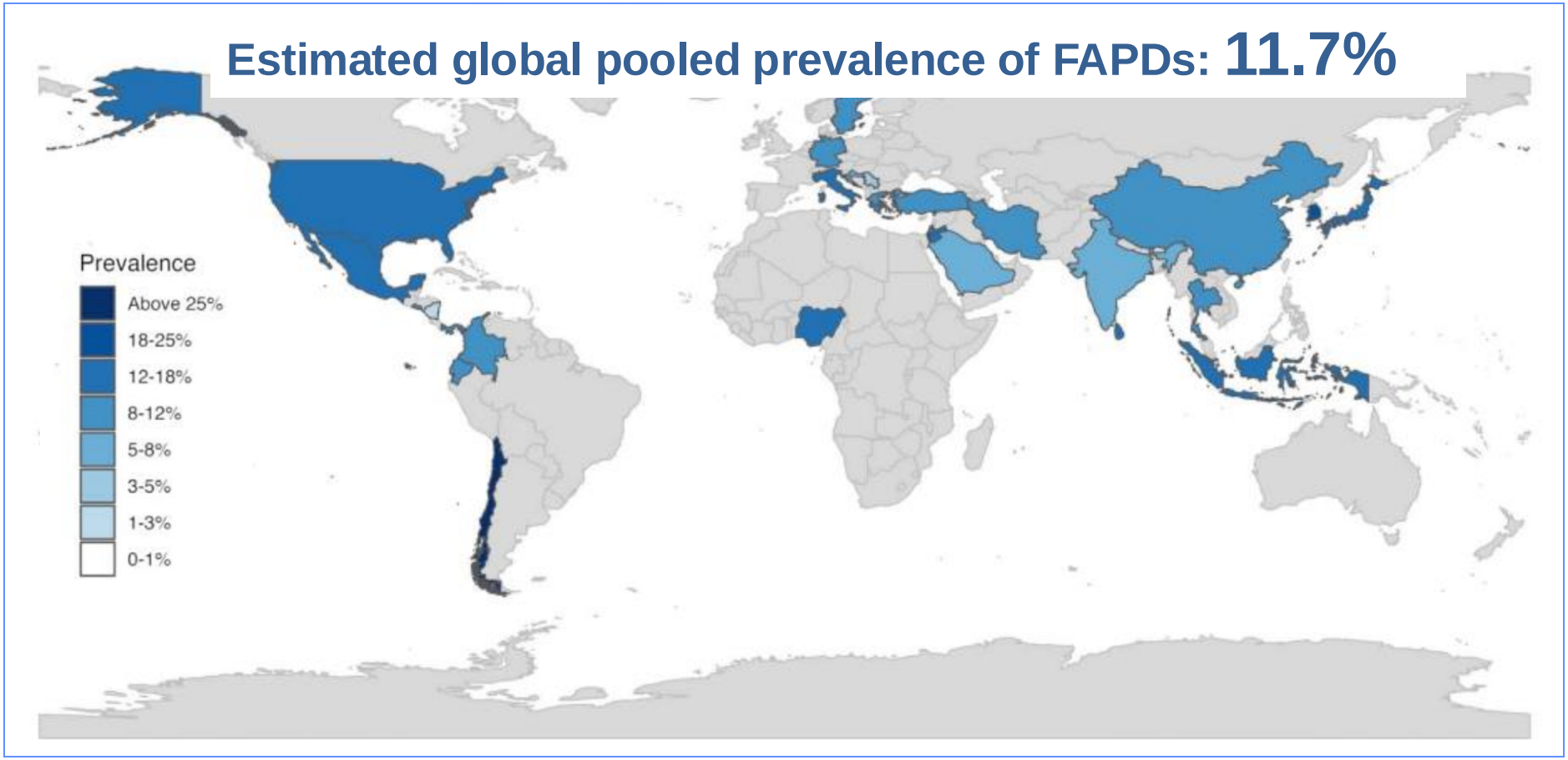
- **H2a. Functional dyspepsia**
- **H2b. Irritable bowel syndrome**
- **H2c. Abdominal migraine**
- **H2d. Functional abdominal pain, not otherwise specified**

H3. Functional defecation disorders

- **H3.1 Functional constipation**
- **H3.2 Nonretentive fecal incontinence**

Hyams JS, Di Lorenzo C, et al. Gastroenterology 2016

Prevalence of functional abdominal pain disorders



Contributing factors: anxiety, depression, stress, negative life events, and poor sleep

Vermeijden K, et al. Pediatrics 2025

Multisite pain characteristics in a cohort of children with FAPDs (n = 406)

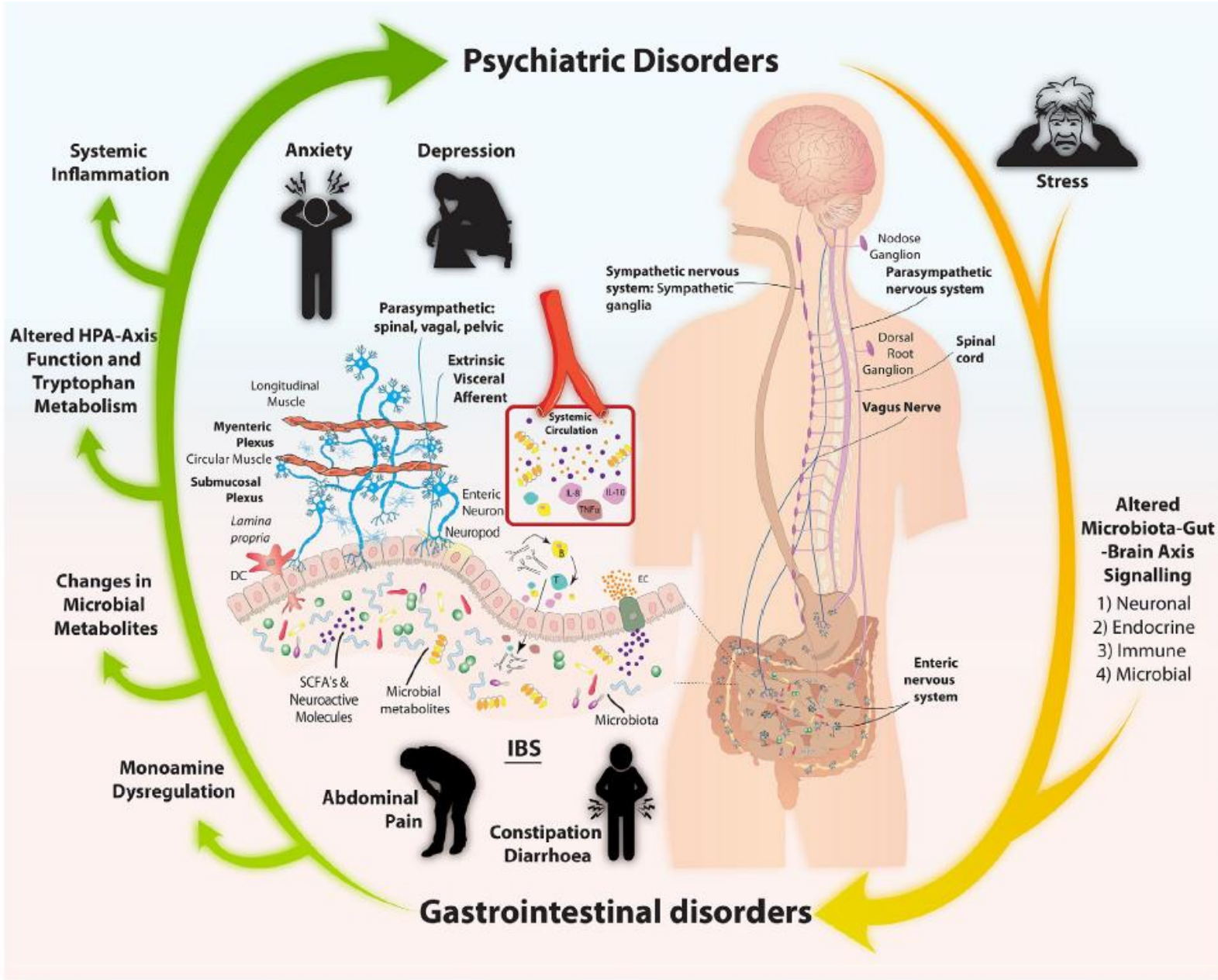
Multisite pain characteristics	n (%)
Any nonabdominal multisite pain	295 (73%)
More than 1 nonabdominal multisite pain site	200 (49%)
Number of nonabdominal pain sites in those with multisite pain	2 [1-3]*
Nonabdominal multisite pain locations	
Headaches	172 (42%)
Chest pain	143 (35%)
Muscle soreness	134 (33%)
Lower back pain	110 (27%)
Joint pain	94 (23%)
Extremity (arms and legs) pain	87 (21%)
Pain with urination	30 (7%)

Chumpitazi B, et al. J Pediatr 2021

Comparisons between children with FAPDs with vs without multisite pain on abdominal pain, psychosocial distress, functional disability, and HRQoL

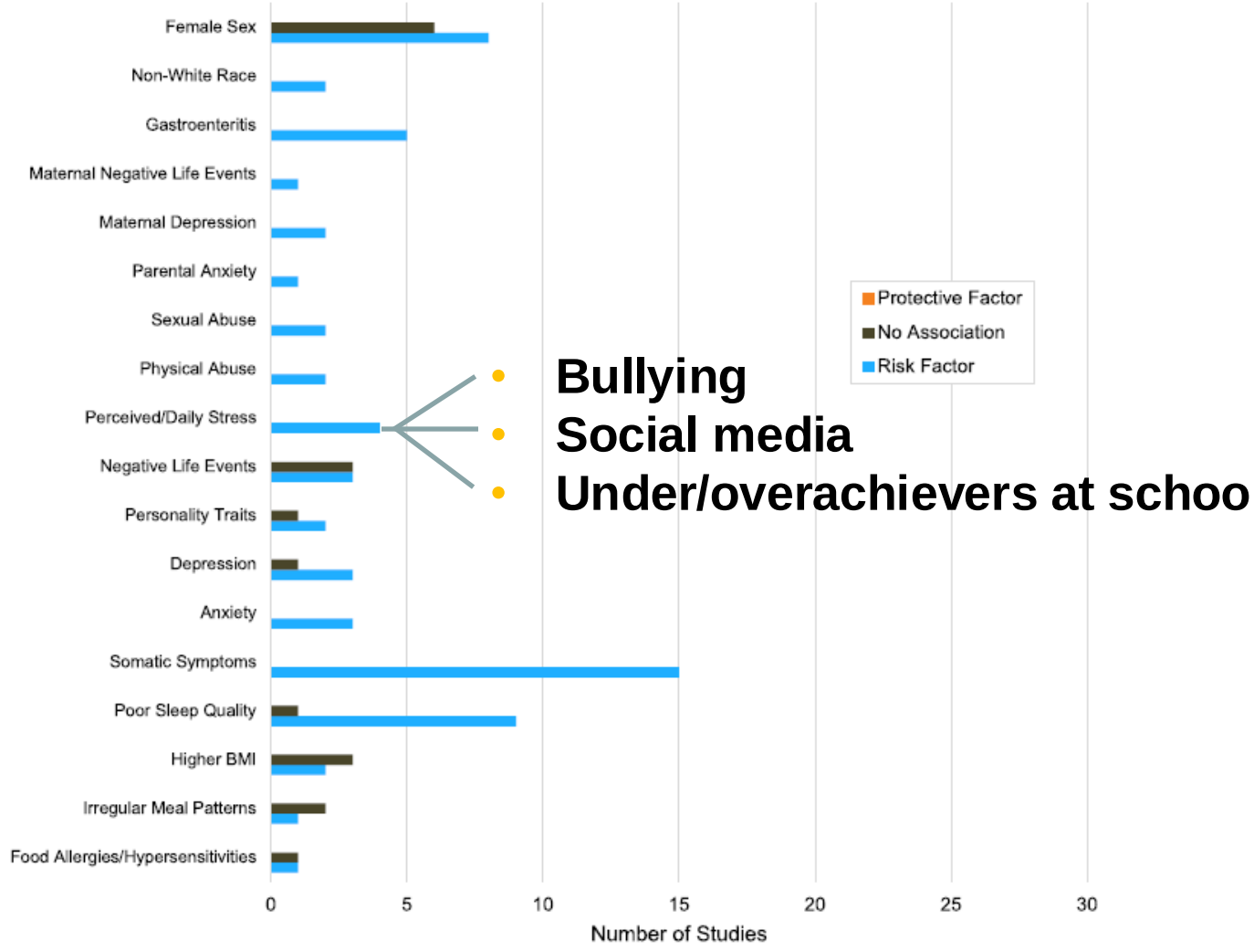
Variables	With multisite pain (n = 295)	Without multisite pain (n = 111)	*P* value
Abdominal pain episodes/2 wk.	12 [6-20]*	7 [3-14]	<.001
Abdominal pain intensity (0-10)	3.2 [2.3-4.2]	2.8 [2.2-3.9]	.03
Anxiety (t score)	54 [45-62]	45 [39-54]	<.001
Depression (t score)	46 [42-53]	43 [41-47]	<.001
Functional disability	10 [5-19]	5 [1-9]	<.001
PedsQL total score	77.2 [65.2-87]	88 [81.5-93.4]	<.001
PedsQL physical function	78.1 [62.5-90.6]	90.6 [81.3-96.9]	<.001
PedsQL emotional function	70 [50-85]	90 [80-95]	<.001
PedsQL social function	95 [80-100]	95 [85-100]	.27
PedsQL school function	75 [60-85]	85 [75-95]	<.001
PedsQL psychosocial function	76.7 [63.3-86.7]	88.3 [80-93.3]	<.001

Chumpitazi B, et al. J Pediatr 2021



Wilmes L, et al. AP&T 2021

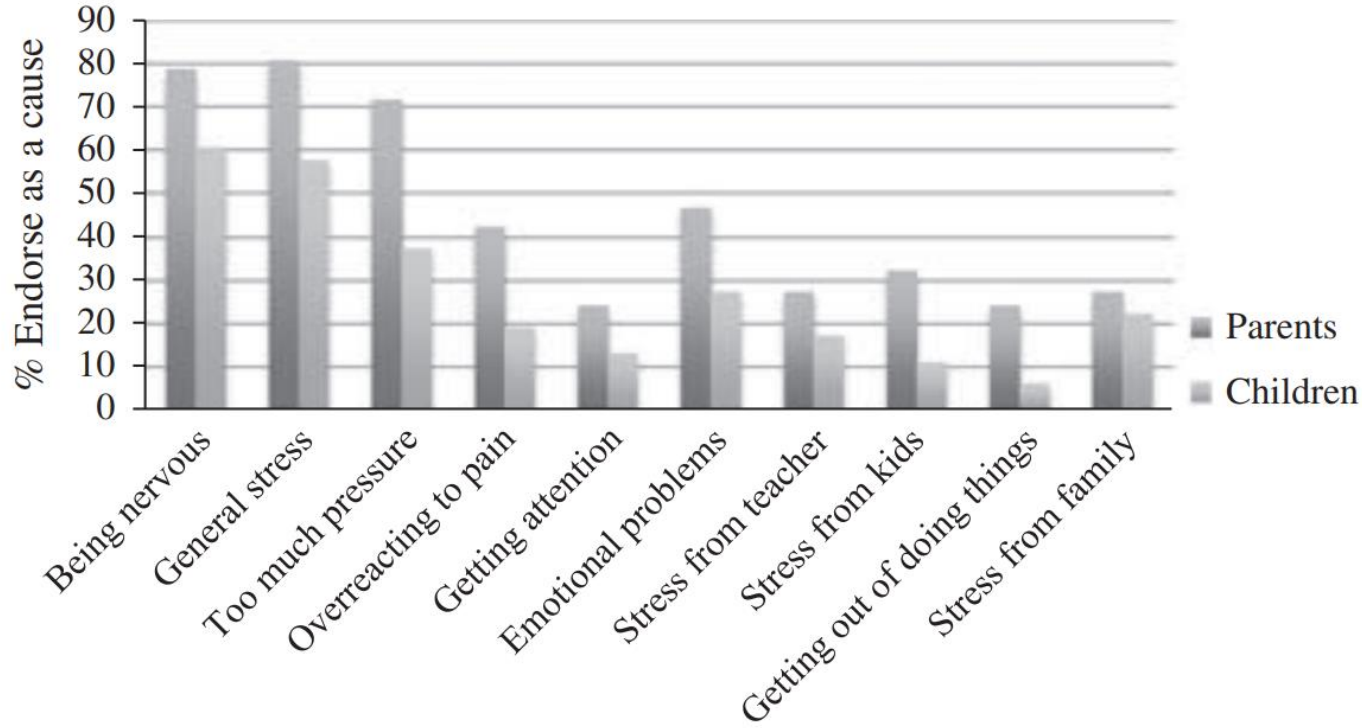
Risk & Protective factors for AP-DGBI in children



Zia JK, et al. Gastroenterology 2022

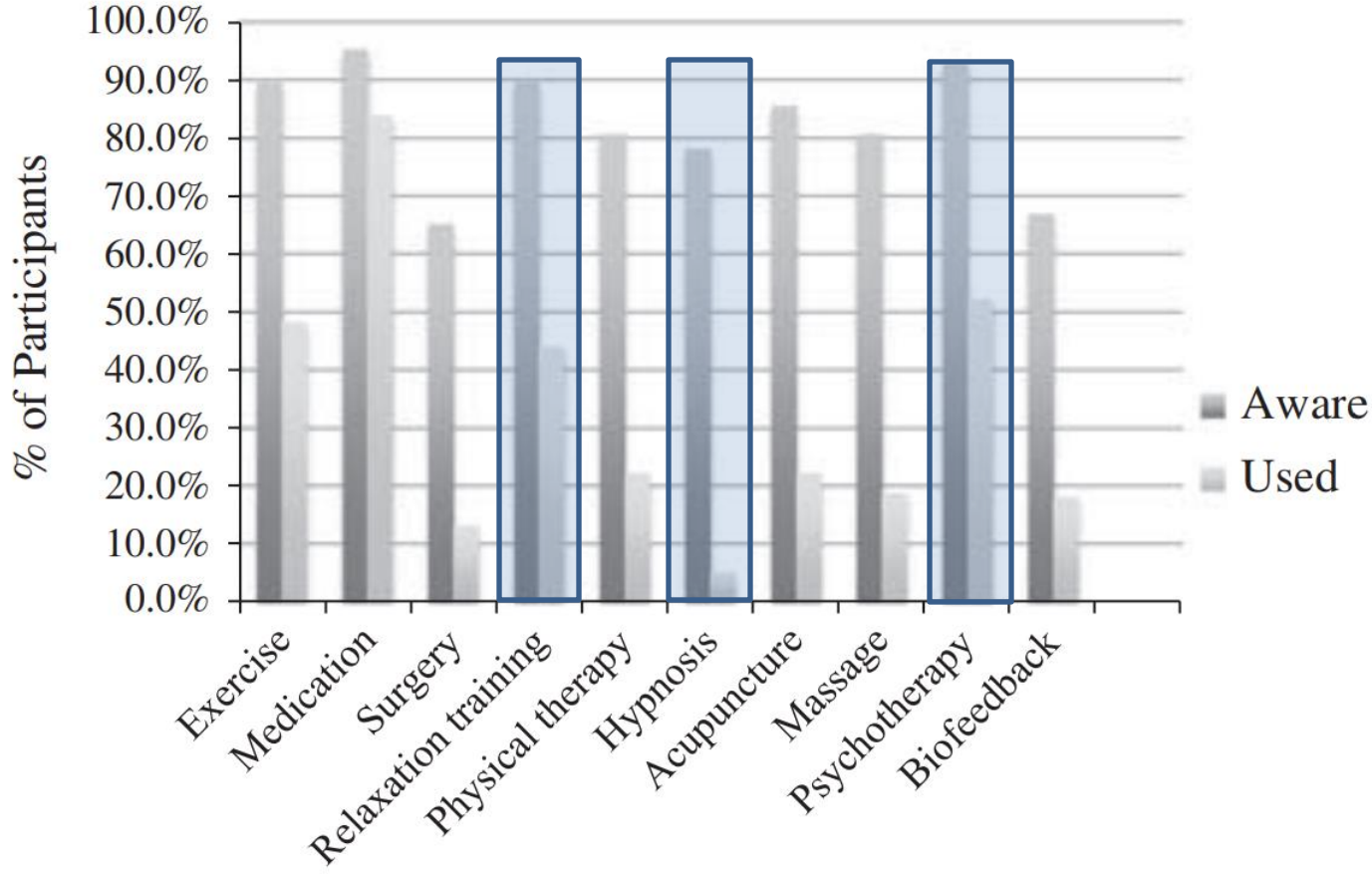
Perceptions of Pain Treatment in Pediatric Patients With DGBI

Parent and child attributions to psychological causes



Hale AE, et al. Clin J Pain 2020

Perceptions of Pain Treatment in Pediatric Patients With DGBI

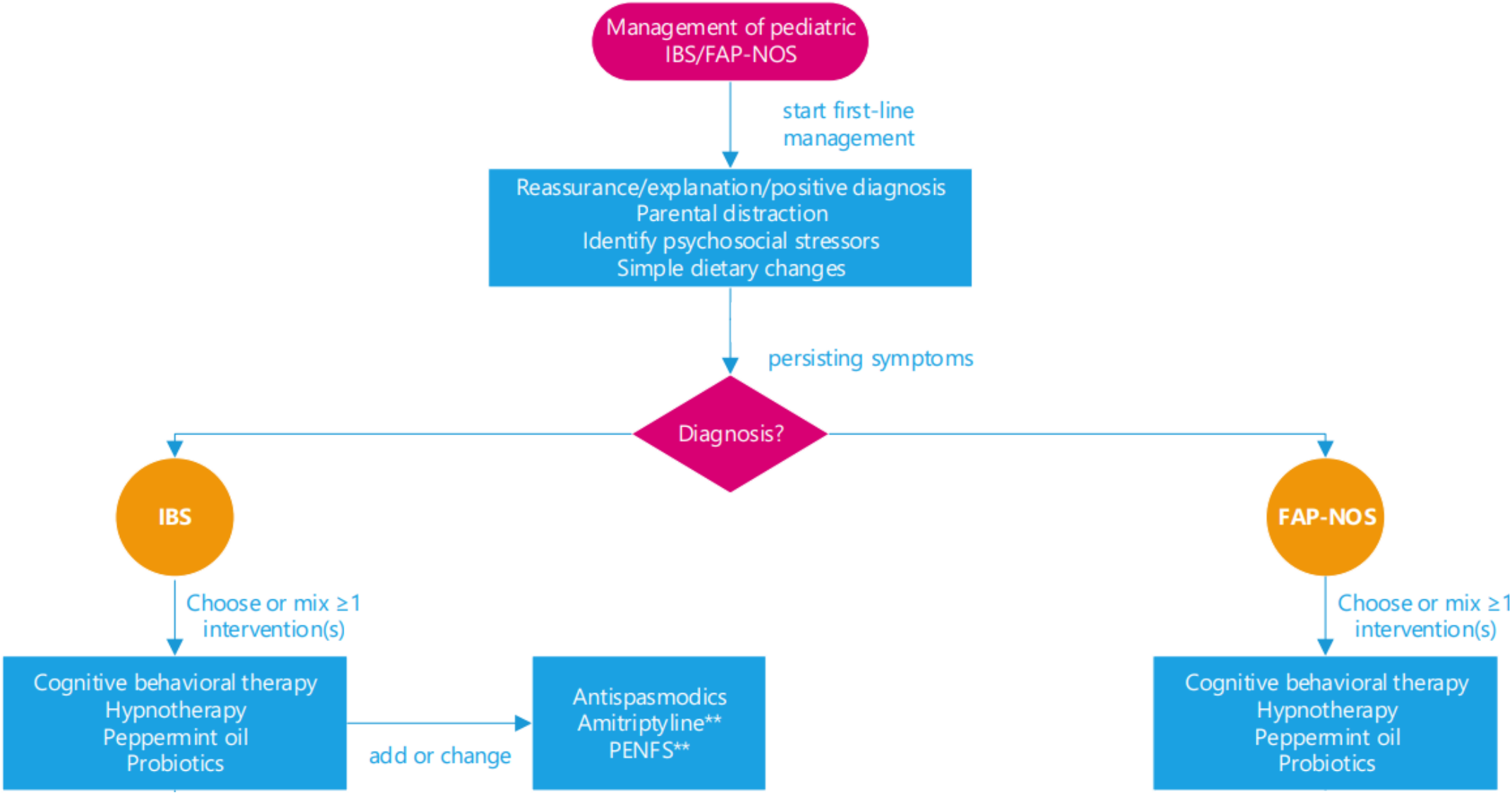


Hale AE, et al. Clin J Pain 2020

The Golden Half Hour in Chronic Pediatric Pain
Feedback as the First Intervention

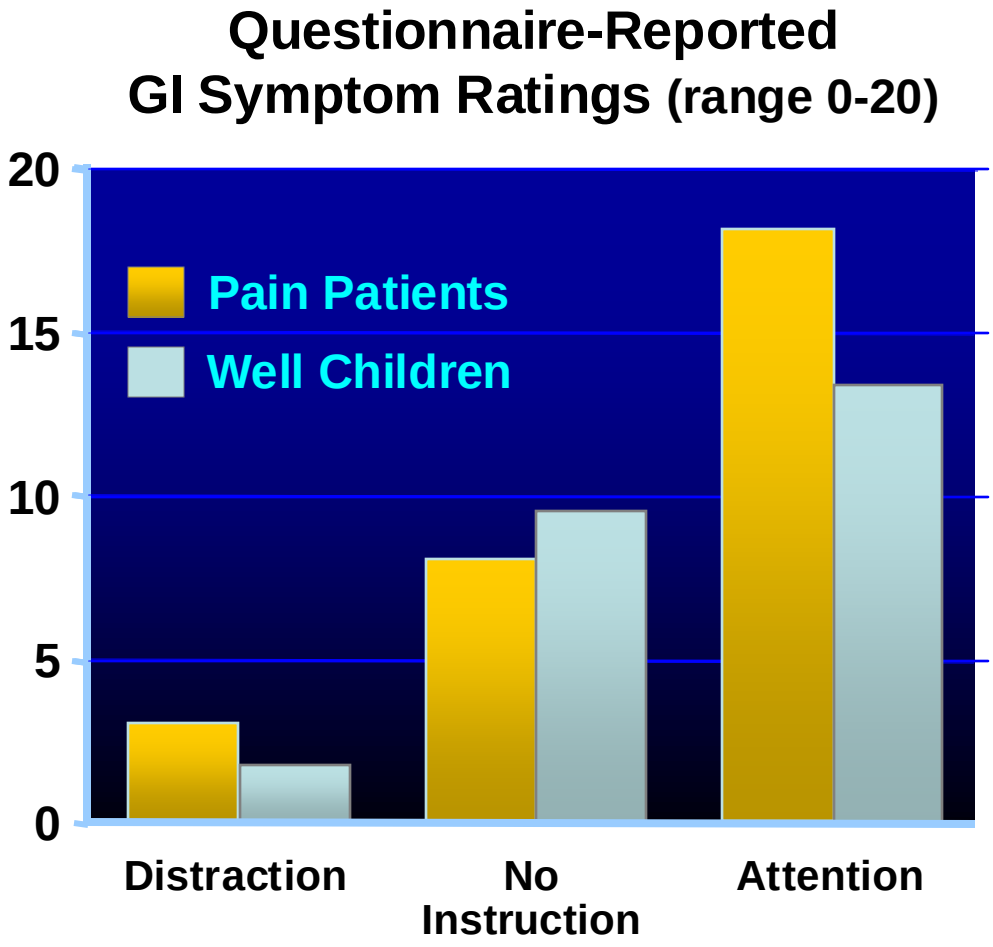
- **Elicit parent and child expectations at the outset (diagnostic tests)**
- **Validate Symptoms, families feel dismissed/stigmatized when mental health referral is made for what they perceive is a physical problem**
- **Offer a positive diagnosis**
- **Provide education**
- **Emphasize a multidisciplinary intervention plan (medical intervention, with psychological intervention, increased physical activity)**
- **Stay Connected follow-up visits every 4-6 wks**
- **Offer an Optimistic Appraisal**

Schechter NL, et al. JAMA Pediatr 2020



Rexwinkel R, Eur J Pediatr 2022

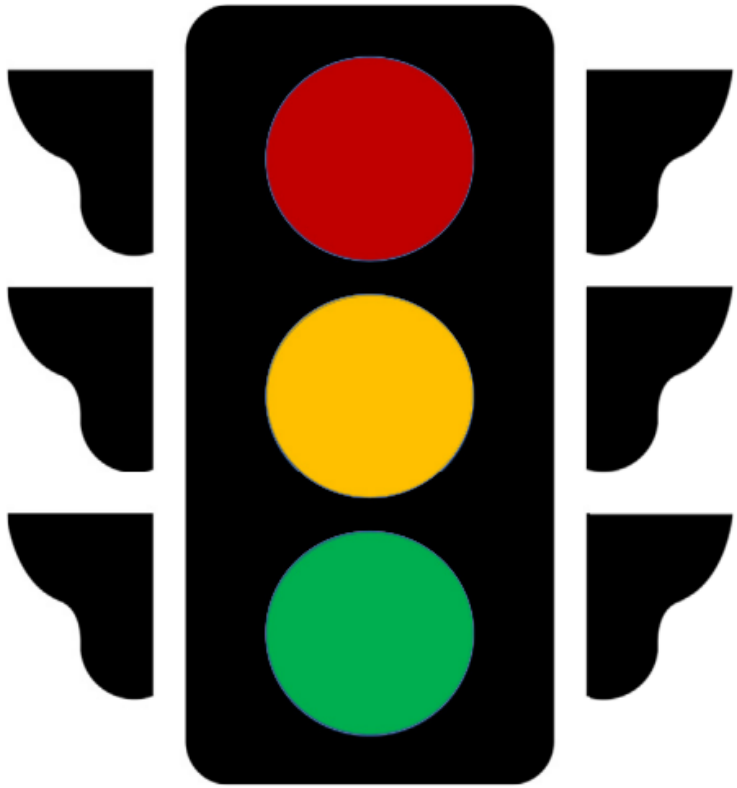
Parent Attention vs. Distraction



- **Pain induced by water load test**
- **Parents randomized to using distraction or attention in their interaction with children in pain**
- **All mothers felt distraction was inappropriate response to pain**

Walker LS, et al. Pain 2006

Choosing the right candidate for Brain-Gut behavior therapies



Inappropriate candidates for BGBT include people presenting with: severe psychopathology, no insight into gut-brain connection, overly focused on “cure,” active substance abuse, needs case management services or cannot invest time

Keefer L, et al. Gastroenterology 2022

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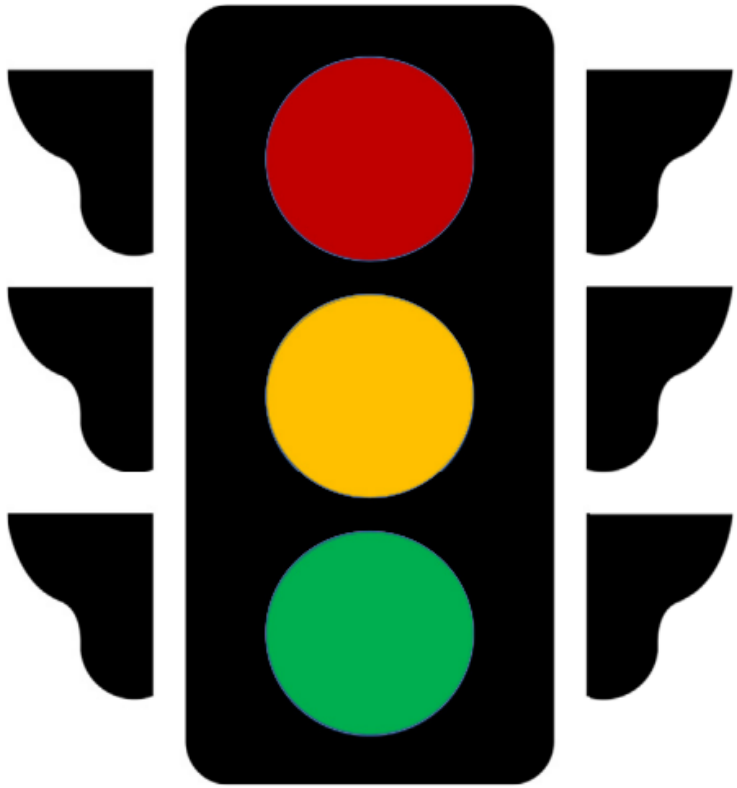

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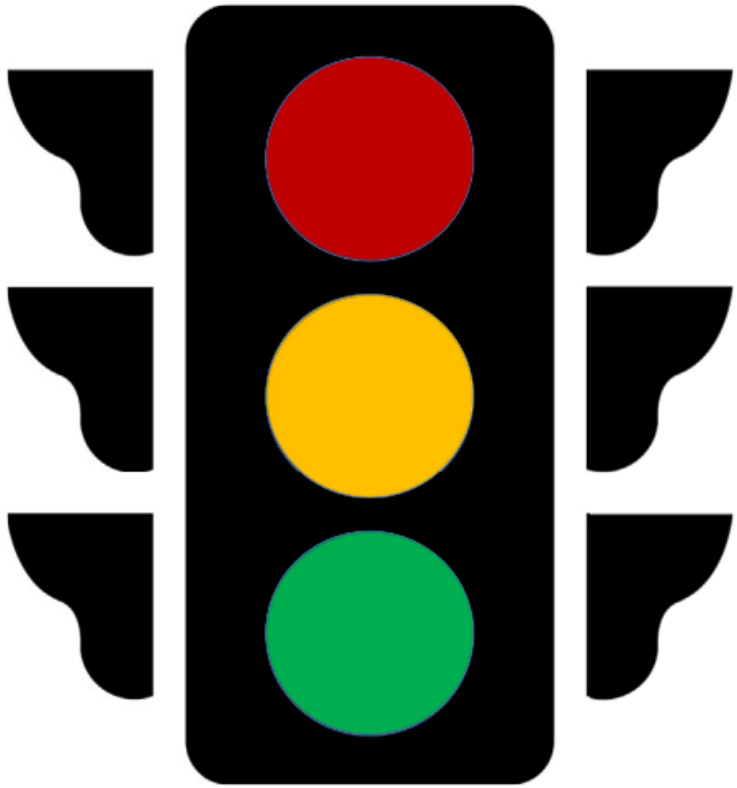
Keefer L, et al. Gastroenterology 2022

Choosing the right candidate for Brain-Gut behavior therapies



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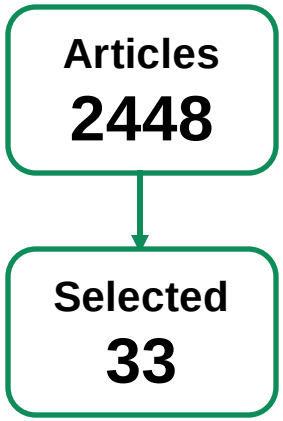
Candidates who present with disordered eating, post-traumatic stress, personality features impacting care, psychological comorbidities or motivational deficits may be appropriate based on therapist comfort/skill level with the population.

Good candidates have accepted their diagnosis of DGBI, understand the role of BGBT in integrated care, has time to invest in behavior change, agrees coping could be improved, experiences isolation, avoidance or significant distress around GI symptoms

Keefer L, et al. Gastroenterology 2022

Psychosocial interventions for the treatment of Functional Abdominal Pain Disorders in Children: A systematic review and meta-analysis



- 2657 children, aged 4-18 years

- 12 compared CBT to no intervention
- 5 CBT to educational support
- 3 yoga to no intervention
- 2 HT to no intervention
- 2 gut-directed HT to HT
- 2 guided imagery to relaxation
- 7 looked at other unique comparisons

M. Gordon, et al. Jama Pediatr 2022

Hypnotherapy

Hypnotherapy

- **HT involves guiding the patient to enter a state of enhanced receptivity (ie, a trance state), during which targeted suggestions are introduced to encourage psychological and physiological changes**
- **Upon hypnotic induction, repetitive suggestions, imagery, and metaphors are presented that are intended to facilitate desired changes after the hypnosis session is terminated (ie, posthypnotic suggestions)**
- **When used to treat IBS, these posthypnotic suggestions focus on reducing attention to bowel symptoms, reducing the intensity and frequency of pain, improving gut motility, decreasing stress sensitivity in the gut, and increasing the patient's overall sense of well-being**
- **Therapeutic suggestions often are accompanied by metaphors to enhance their effect (eg, visualizing the GI tract as a river and using the mind to modify the flow, swallowing a medication that creates a protective coating on the GI tract, or the image of an inflated balloon being slowly deflated as a metaphor to reduce abdominal bloating**

Brenner DM, et al. Clin Gastrenterol Hepatol 2024

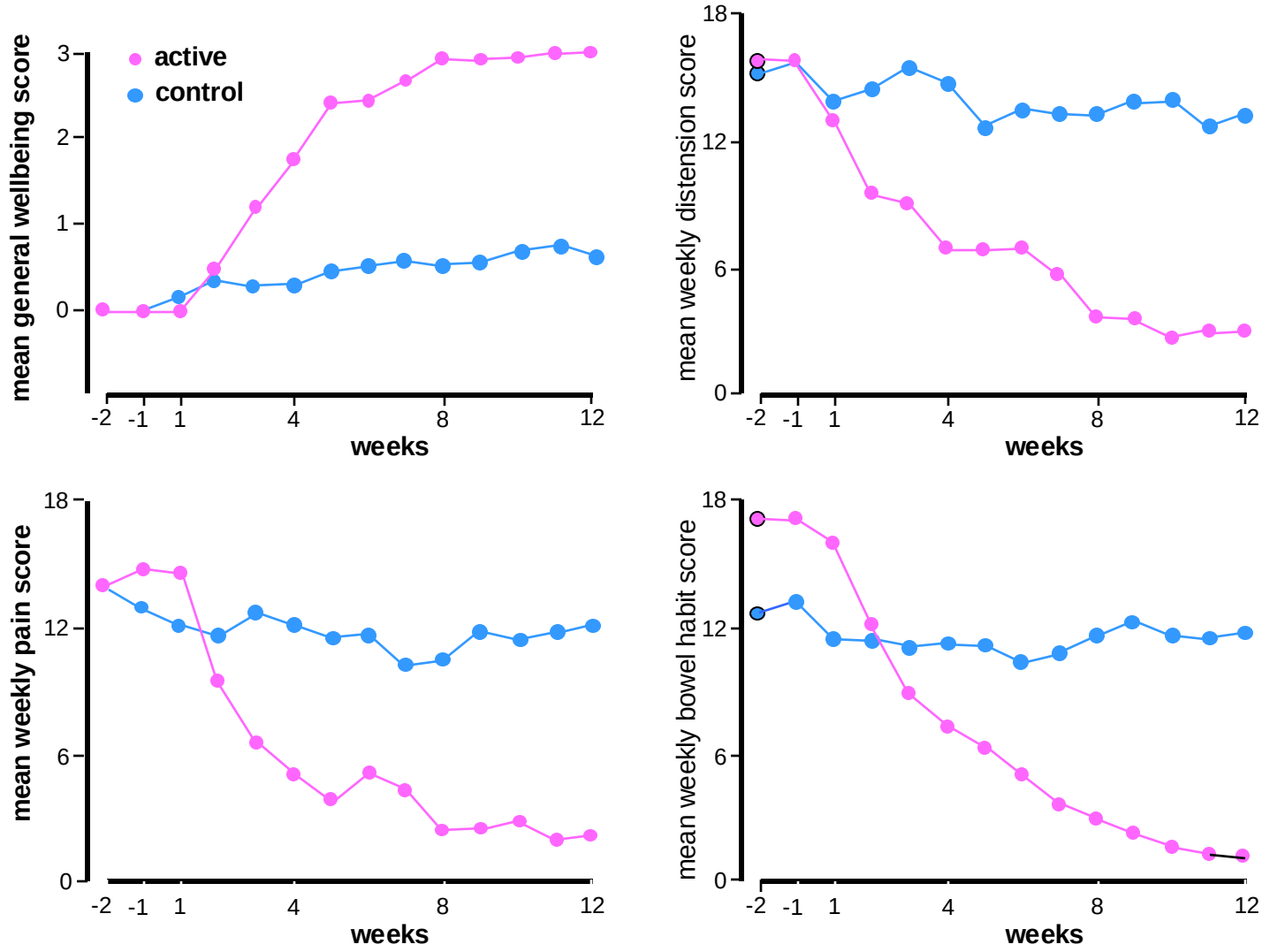
What the public think about hypnosis and HT

- **Broadly believe hypnosis to be some form of altered state**
- **Hypnosis can have psychological, and to a lesser extent, medical benefit**
- **Pronounced belief in hypnosis's ability to affect memory and access past life experiences**
- **Majority of people appear open to idea of HT, a minority reject it**
- **Hypnotherapeutic services seem to be more acceptable if referral is made by a clinician**

Krouwel M, et al. Complement Th Med 2017

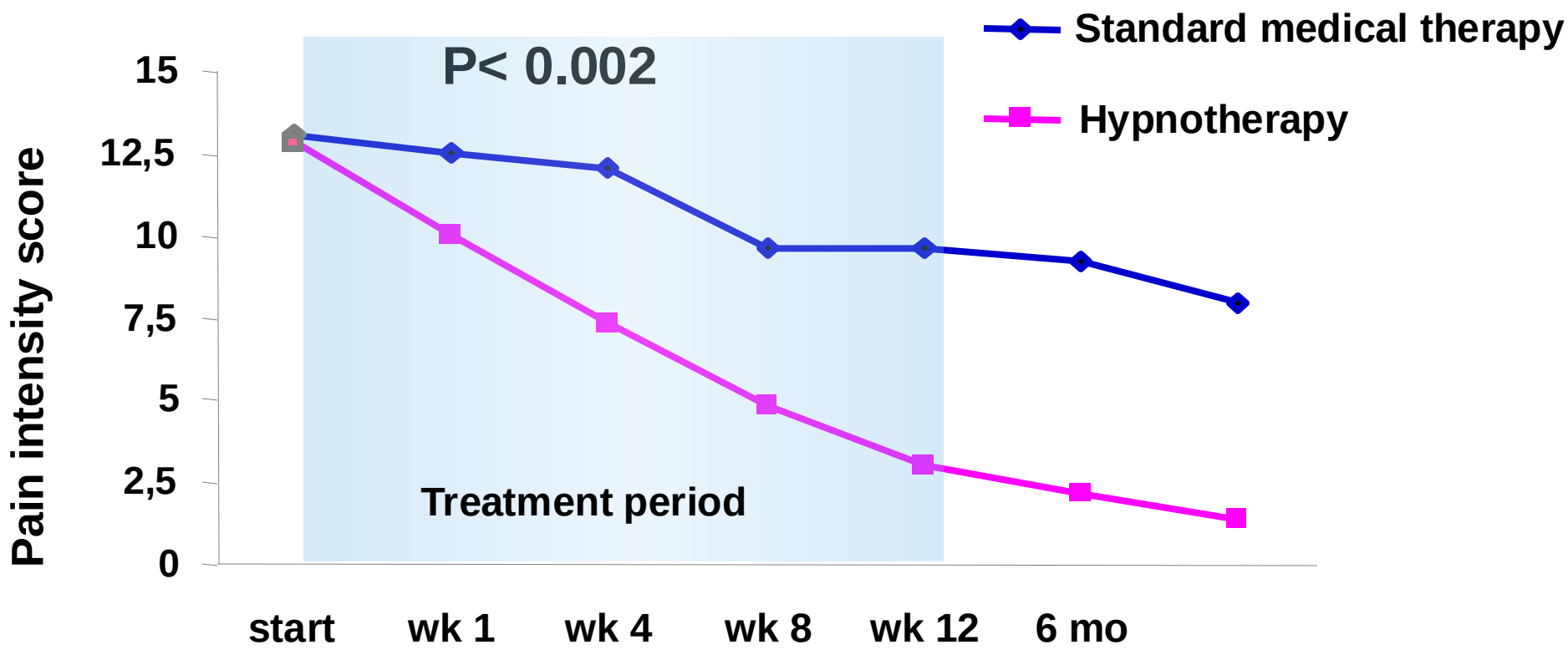
CONTROLLED TRIAL OF HYPNOTHERAPY IN THE TREATMENT OF SEVERE REFRACTORY IRRITABLE-BOWEL SYNDROME

P. J. WHORWELL ALISON PRIOR
E. B. FARAGHER



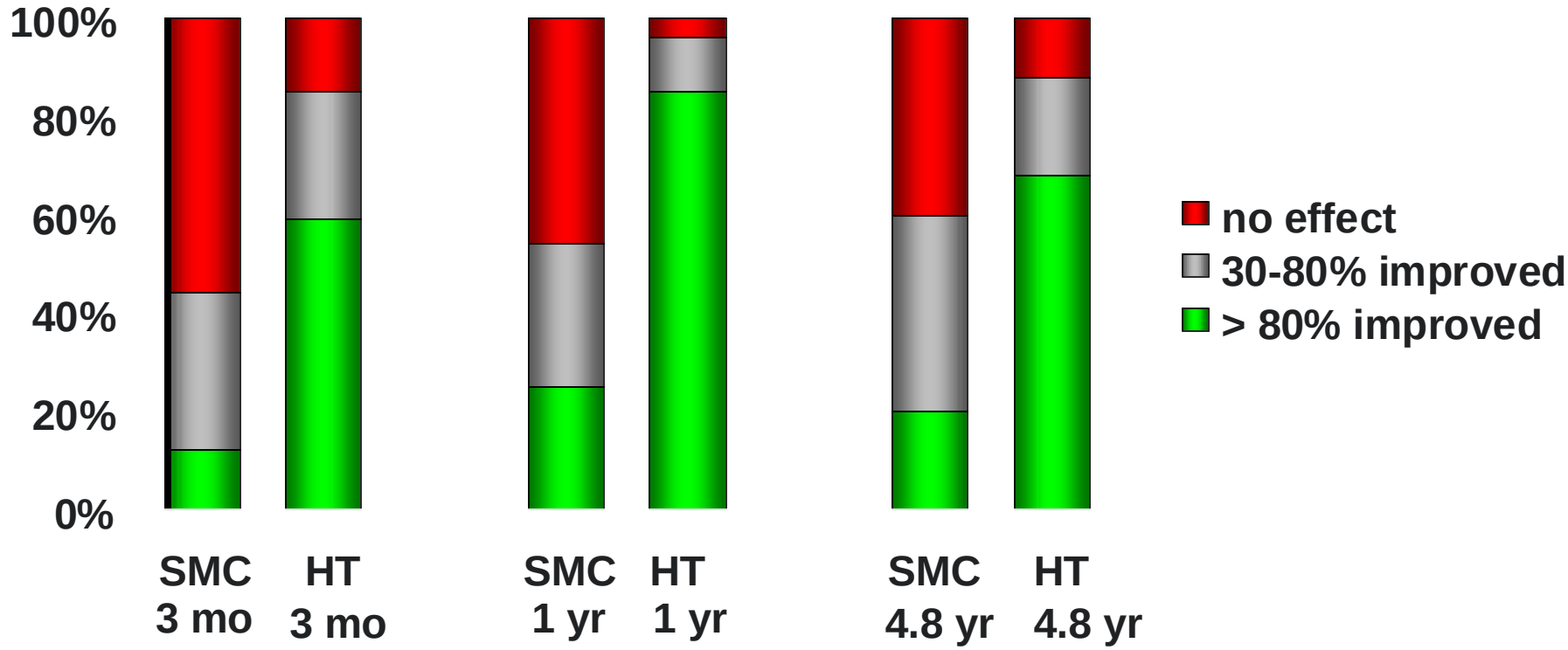
Lancet 1984

Effect of therapy on pain intensity scores



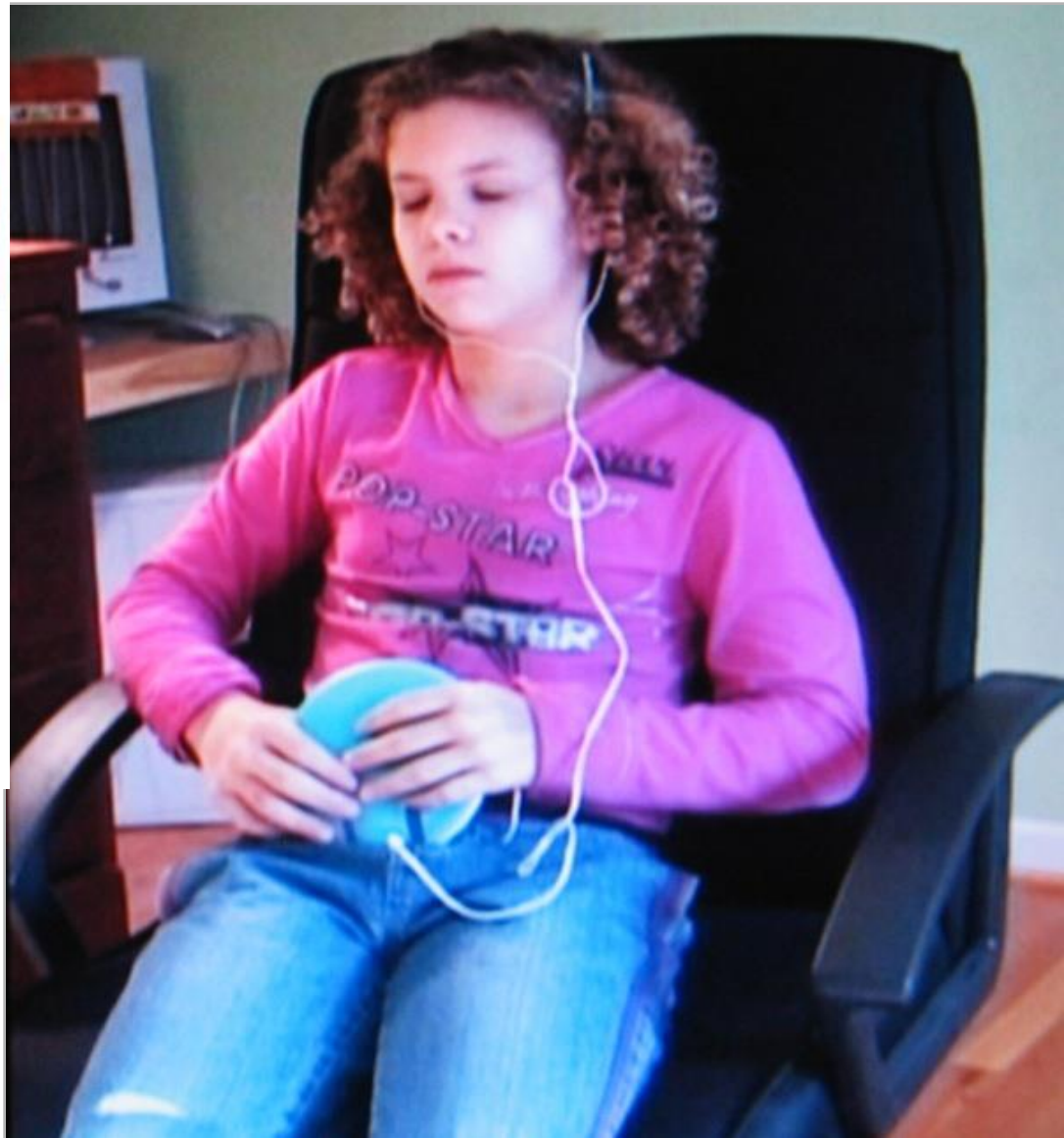
Vlieger A, et al. Gastroenterology 2006

Results – Clinical remission

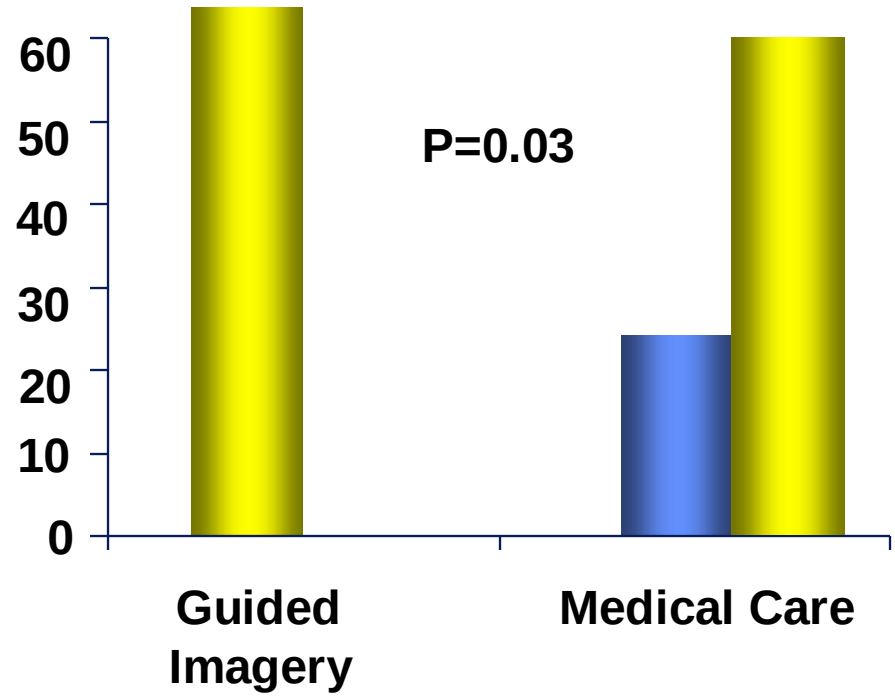


Vlieger A, et al. Am J Gastroenterol 2012

Audio-recorded Guided Imagery



Success



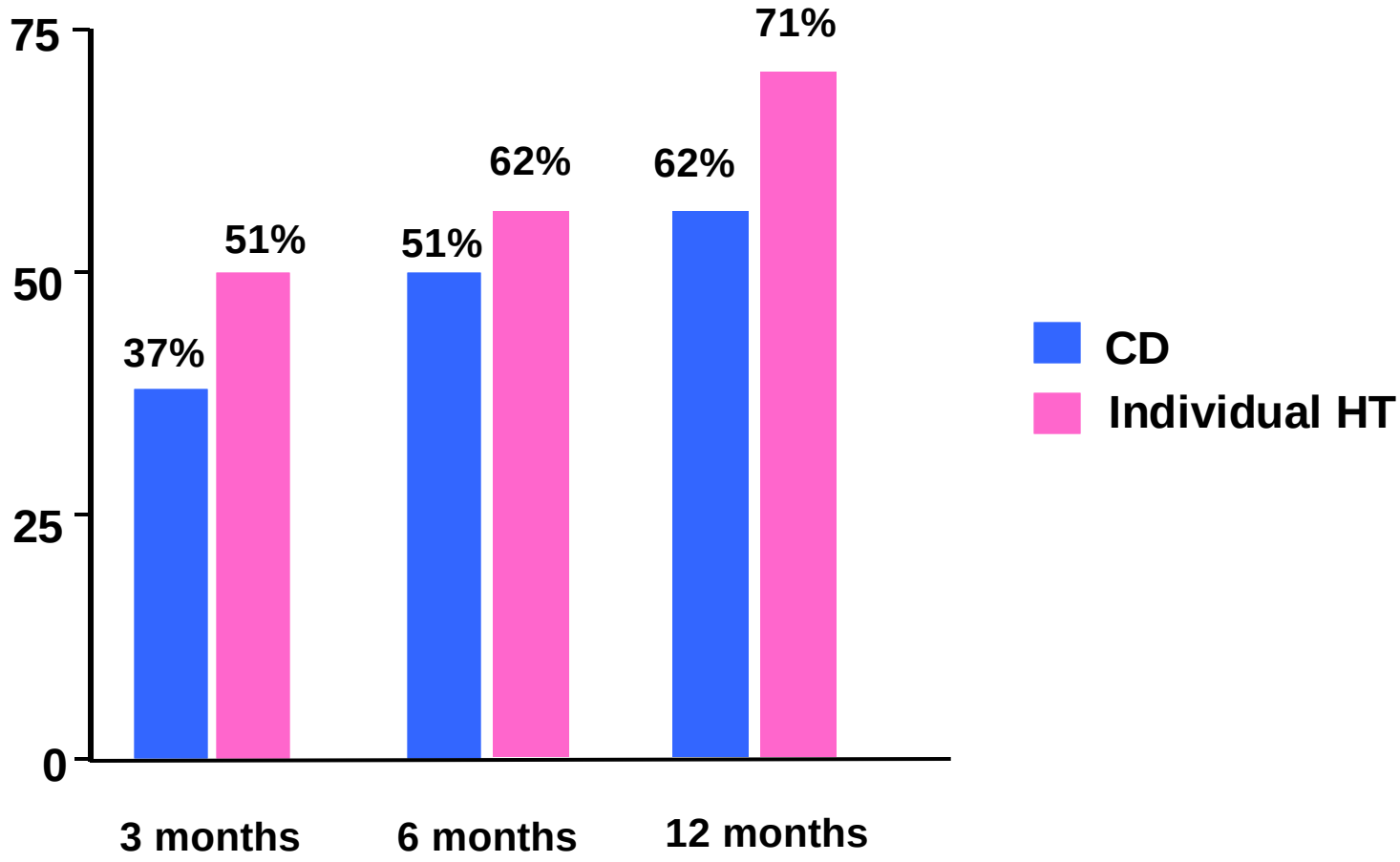
Van Tilburg M, et al. Pediatrics 2009

Baseline characteristics

Characteristic	CD Group (n = 126)	iHT Group (n = 124)
Age, mean (SD), y	13.4 (2.9)	13.3 (2.8)
Female	94 (74.6)	85 (68.5)
IBS		
IBS-C	39 (60.0)	35 (57.4)
IBS-D	10 (15.4)	3 (4.9)
IBS-M	14 (21.5)	20 (32.8)
IBS-U	2 (3.1)	3 (4.9)
Total IBS	65 (51.6)	61 (49.2)
FAP(S)		
FAP	22 (36.1)	29 (46.0)
FAPS	39 (63.9)	34 (54.0)
Total FAP(S)	61 (48.4)	63 (50.8)
Duration of symptoms, median (IQR), y	2.3 (1.2-5.1)	2.7 (1.1-5.3)
School absenteeism	86 (68.3)	100 (80.6)
No. of school days missed in prior 6 mo, median (IQR)	14.0 (5.0-30.0)	21.1 (4.0-24.5)
Positive family history of abdominal pain	60 (47.6)	56 (45.2)
Prior psychological treatment	19 (15.2)	24 (19.4)

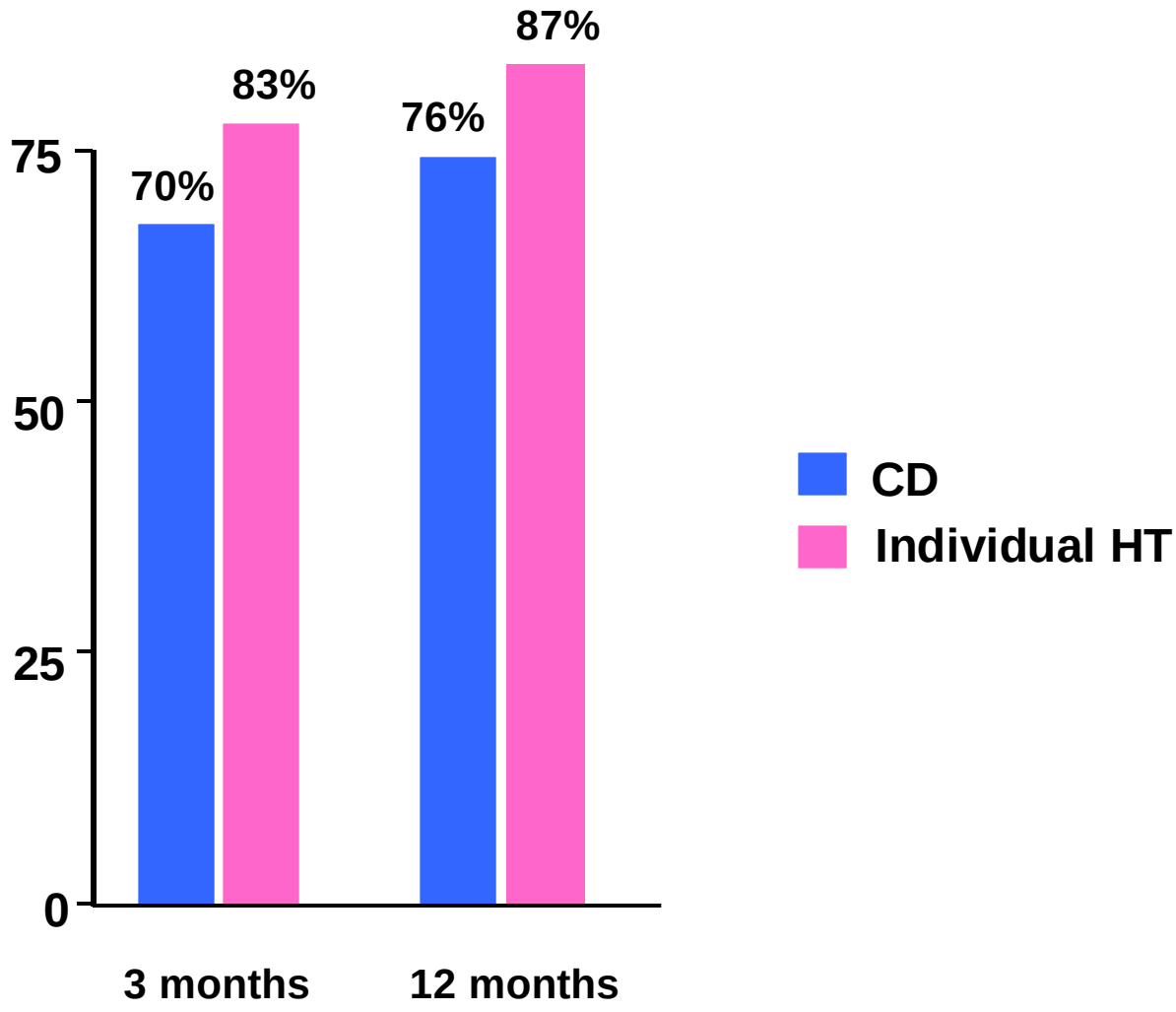
Rutten J, et al. Jama Pediatr 2017

Success defined as at least 50% reduction in the pain frequency and pain intensity score



Rutten J, et al. Jama Pediatr 2017

Parents reported adequate relief



Rutten J, et al. Jama Pediatr 2017

Results

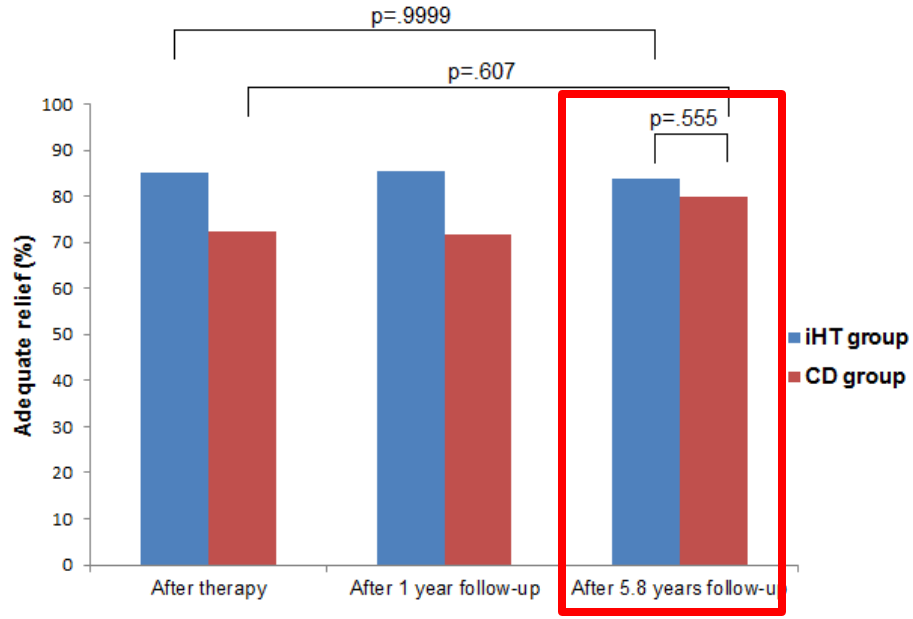
- **Significant improvement in:**
  - **Anxiety**
  - **Depression**
  - **QoL**
  - **Pain beliefs**
- **Treatment effect not related to:**
  - **Prepuberty and older children**
  - **IBS or FAPS**
  - **Anxiety or depression**
  - **Therapist**

Rutten JMTM, et al. JAMA Pediatr 2017

Long-term follow up

Adequate relief:

iHT: 83.8% vs CD: 80%



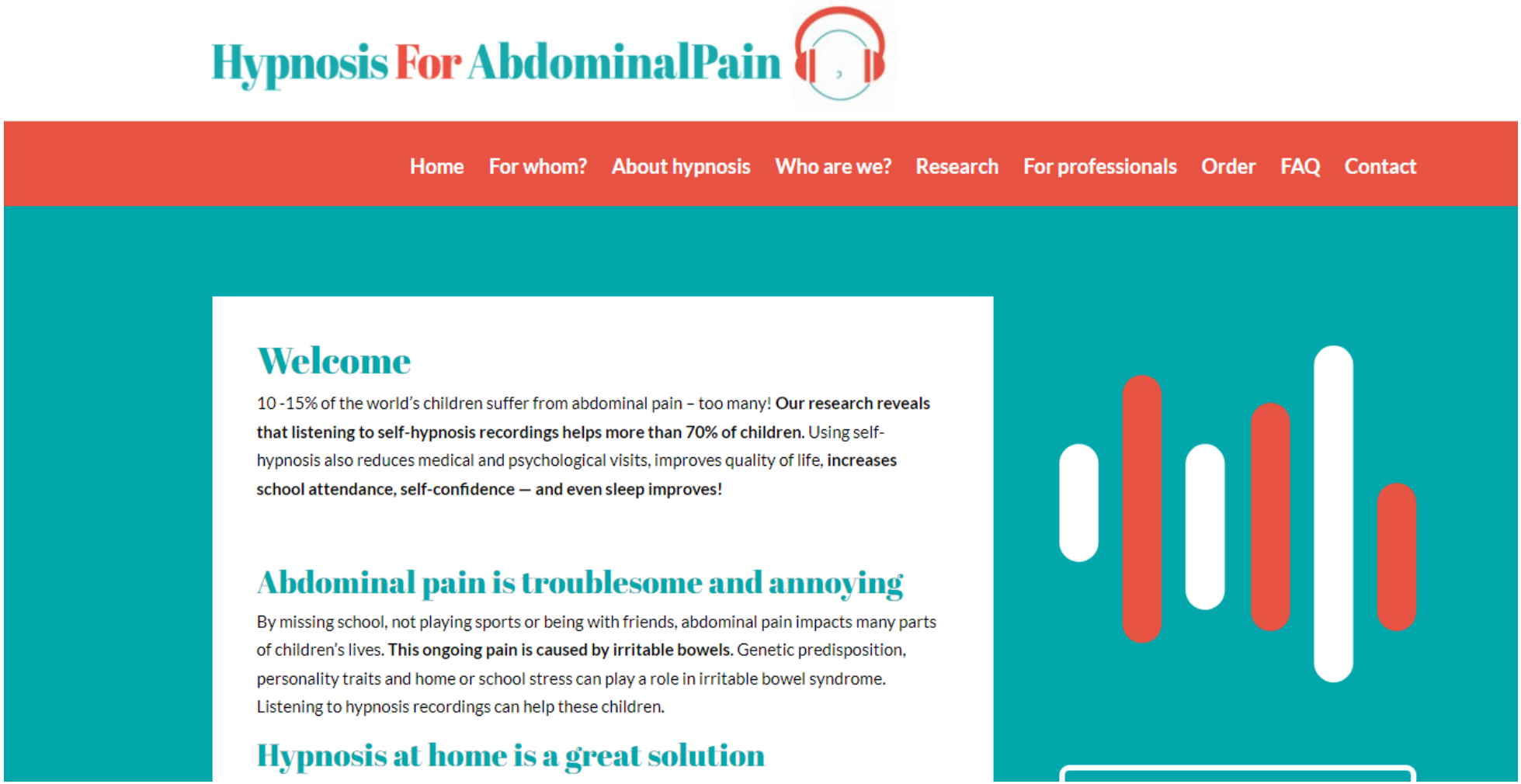
Treatment success*:

	CD group	iHT group	p-value
After therapy	21 (34.4%)	37 (52.1%)	.041*
1 year follow-up	38 (62.3%)	48 (69.6%)	.382
5.8 years follow-up	39 (67.2%)	42 (66.7%)	.946

Rexwinkel R, et al. JPGN 2022

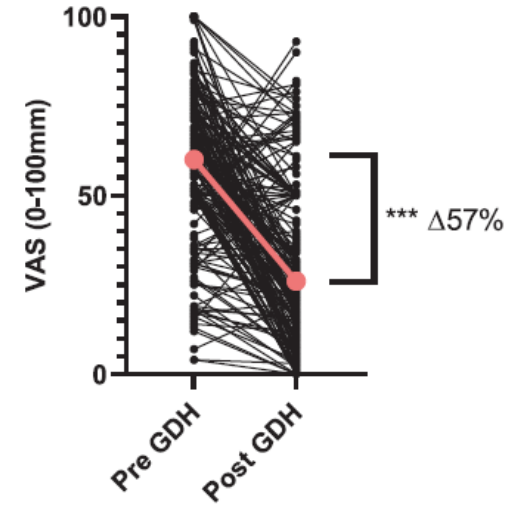
Hypnosis4abdominalpain.com

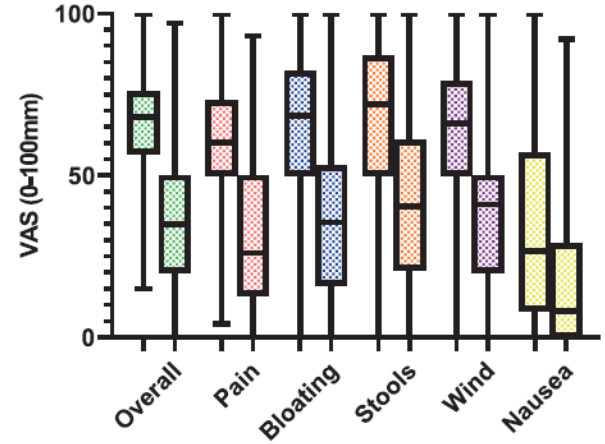
Hipnosisdolorabdominal.com



Smartphone app- delivered gut- directed hypnotherapy improves symptoms of self- reported irritable bowel syndrome: A retrospective evaluation

- 2843 patients with self-reported IBS commenced the free sessions
- 1428 (50%) purchased the app
- 253 (9%) completed all 42 sessions!





Peters SL, et al. Neurogastroenterol Motil 2023

Potential limitations and drawbacks of digital therapeutics for IBS

- **Many patients who download or initiate digital therapeutic apps may not complete the programs**
- **Relatedly, if patients do not have improvement in their IBS after using a digital therapeutic, they may conclude that BGBT modalities are ineffective and be less willing to try a different modality or consider referral to a GI mental health professional for individualized treatment**
- **GI providers recommending digital BGBTs more often, there is a risk that comorbid psychopathology may be missed and patients are not routed to the appropriate mental health re-sources**

Brenner DM , et al. Clin Gastrenterol Hepatol 2024

https://keepingthebeddry.com

Keeping THE Bed Dry®

HOW IT WORKS ABOUT TESTIMONIALS FAQ BLOG LOGIN ORDER

Keeping the Bed Dry® is the *only* medically proven at-home hypnosis program to treat bedwetting in children & teens.

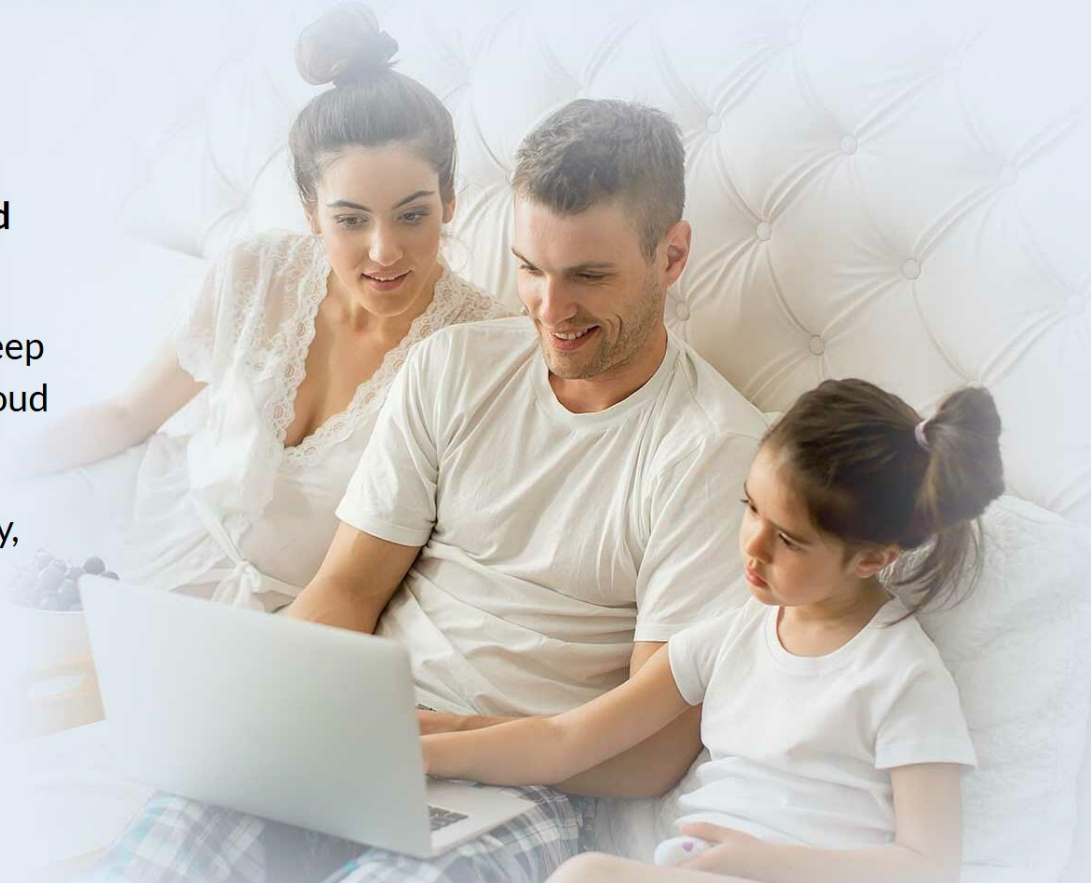
Using this groundbreaking bedwetting hypnosis program, your child can stop wetting the bed, improve their self-esteem, and avoid using expensive experts, alarms, or medication.

Keeping the Bed Dry® has been *medically proven* to reduce bedwetting without the need for medication or alarms.

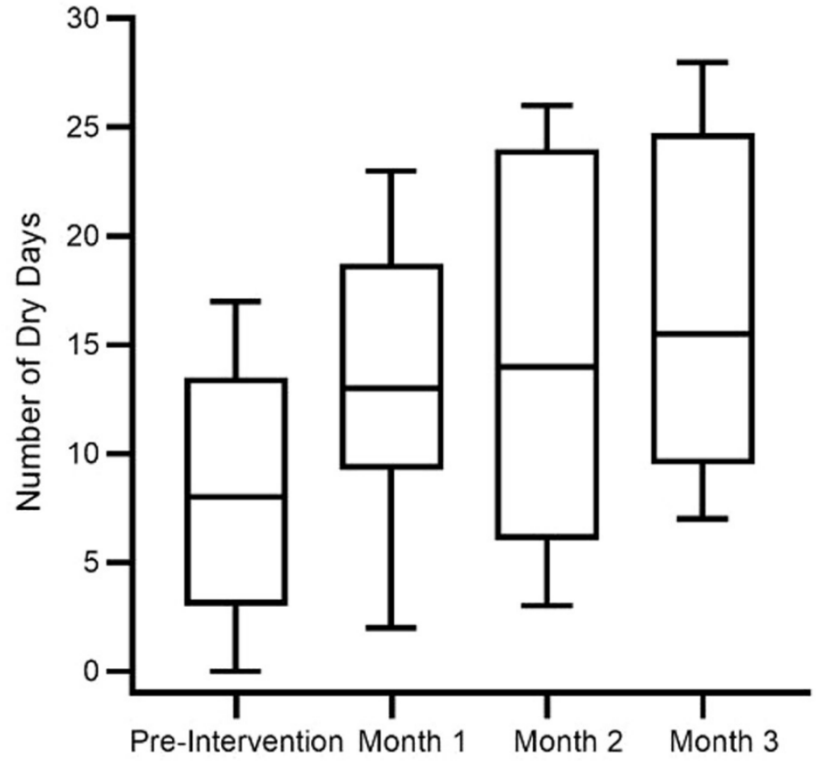
Keeping the Bed Dry® empowers children & adolescents to stay dry using proven bedwetting hypnosis techniques, which give them a sense of accomplishment in being able to say "I did this on my own!"

Results many parents see after implementing this simple 4-video program include…

- Proudly watching their child's **self-esteem and self-confidence increase.**
- **Better sleep for everyone,** thanks to fewer sleep disruptions caused by bedwetting tantrums, loud alarms, and late-night worrying.
- **Hundreds of dollars a month saved** on laundry, waterproof bedsheets, and medication.
- **Peace of mind** knowing that their child can continue practicing these techniques on their own for as long as they need.



Self-guided Online Medical Hypnosis Program Improves Dry Nights in 17 Children (8-15 yrs) With Nocturnal Enuresis in a Prospective Single-Center Pilot Study



Bayne A. Clin Pediatr 2024

The mind can change the body

"Your doctor will be here in a minute, I'm a placebo."

Definitions

Placebo response: all positive health changes that occur after administration of an inactive treatment

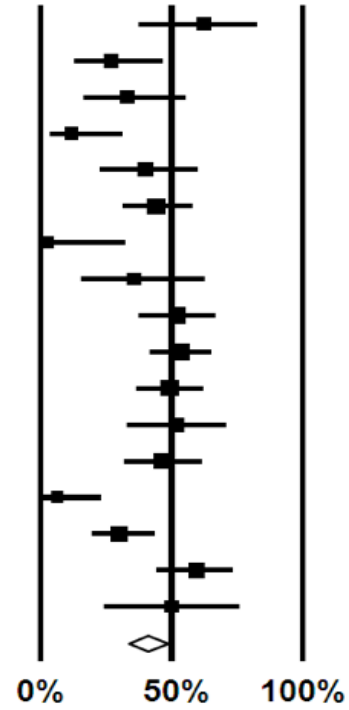
Nocebo response: unwanted effects that occur as a result of negative expectations or negative conditioning

41% improvement with placebo's in ped FAPDs
17% reports no pain

Study name	Improvement rate (%)	Lower limit	Upper limit
Christensen 1982	62.5	37.7	82.1
Feldman 1985	26.9	13.4	46.7
Kline 2001	33.3	16.8	55.3
See 2001	12.0	03.9	31.3
Bausserman 2005	40.0	23.0	59.7
Gawronska 2007	44.2	31.5	57.8
Bahar 2008	2.8	0.2	32.2
Sadeghian 2008	35.7	15.7	62.4
Saps 2009	52.3	37.7	66.4
Francavilla 2010	53.6	41.9	65.0
Guandalini 2010	49.2	36.7	61.7
Di Nardo 2013	52.0	33.1	70.4
Horvath 2013	46.5	32.3	61.3
Romano 2013	6.7	1.7	23.1
Pourmoghaddas 2014	30.4	19.8	43.5
Karunanayake 2015	59.5	44.3	73.1
Zybach 2016	50.0	24.4	75.6
Pooled	40.9	33.6	48.6

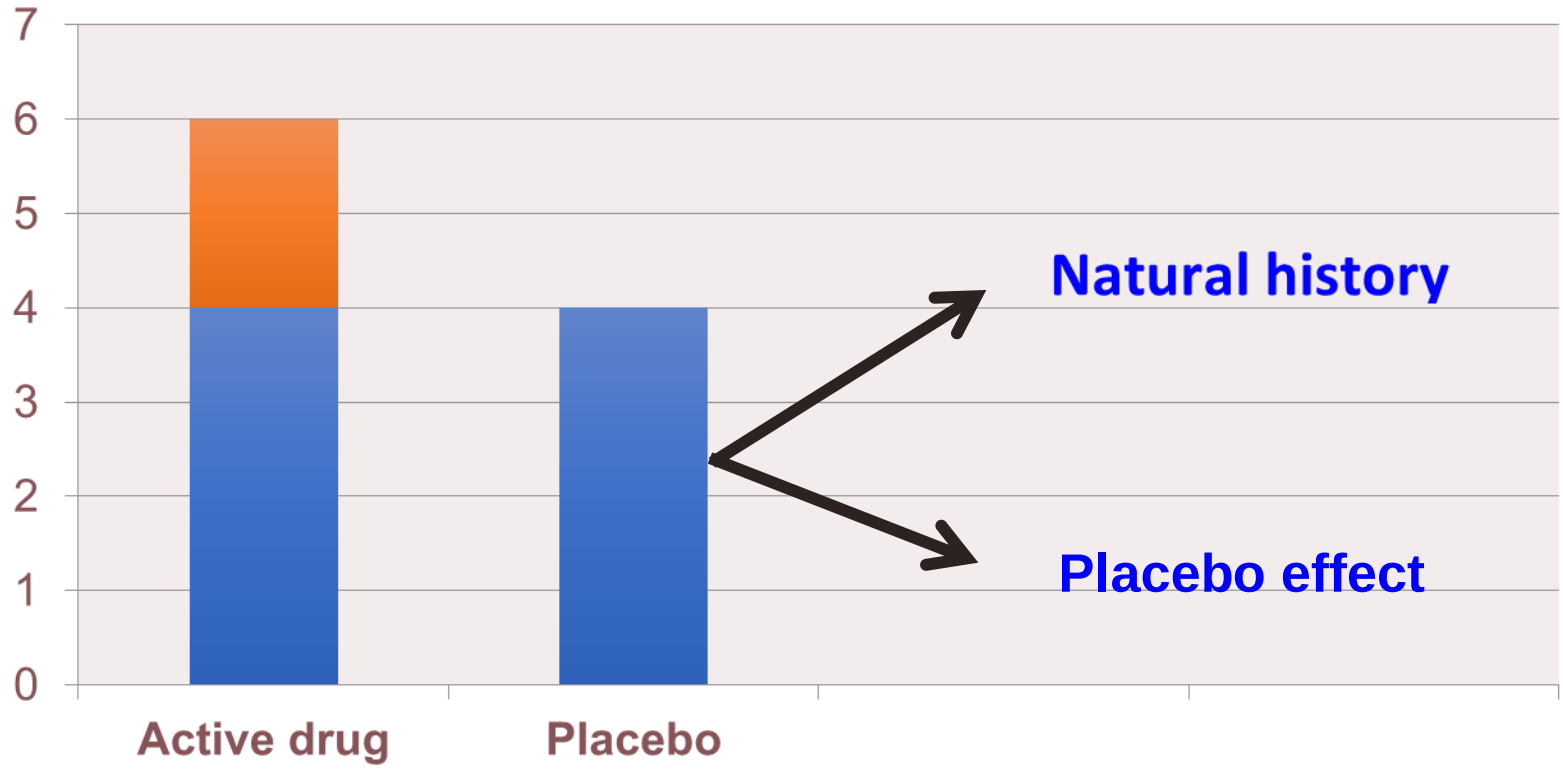
Statistics for each study

Placebo rate and 95% CI

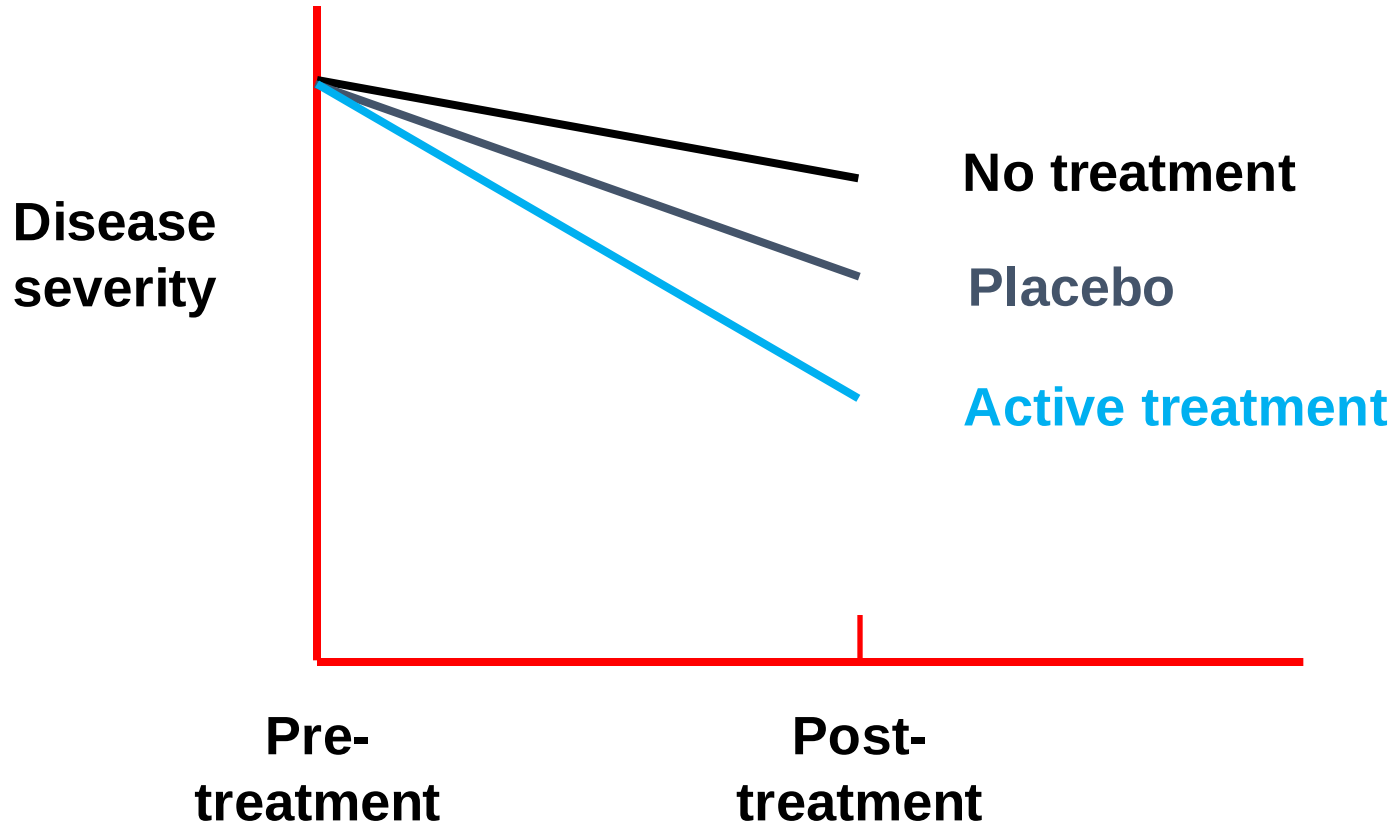


Hoekman D, et al. J Pediatr 2017

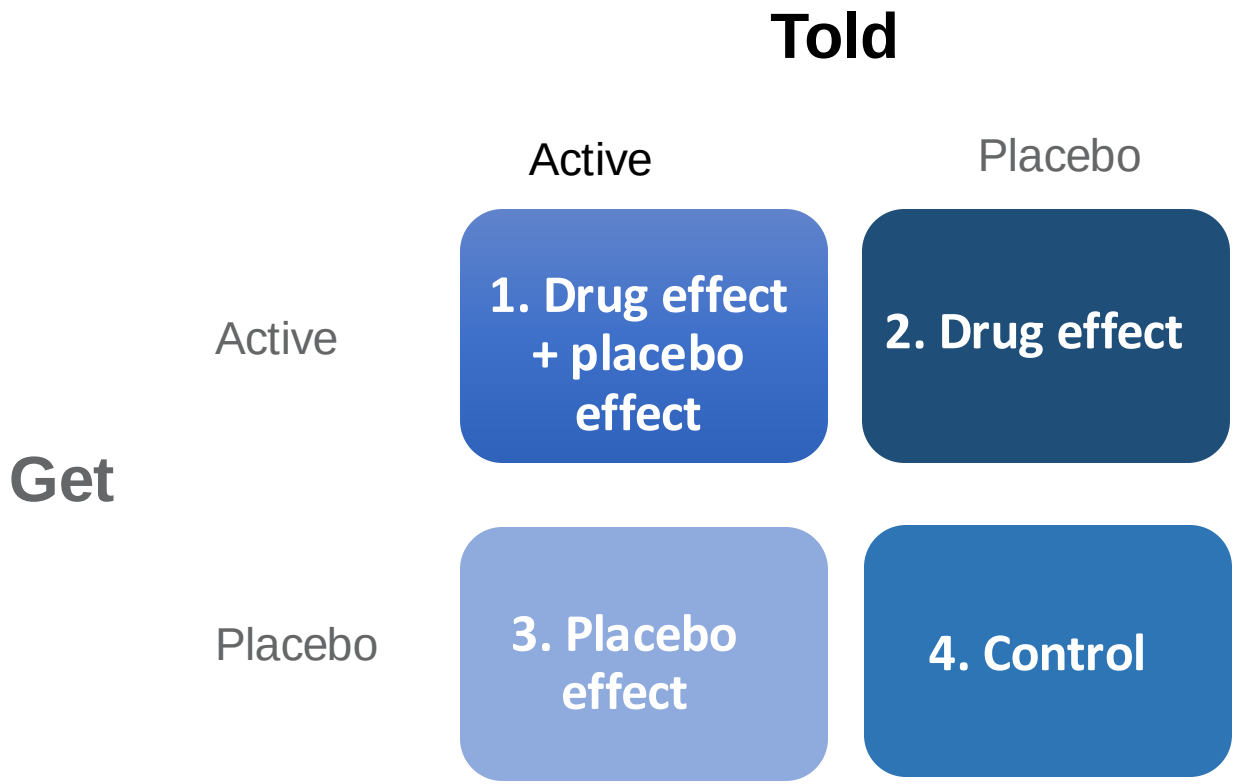
Components of treatment response



Components of treatment response: 3 armed trials

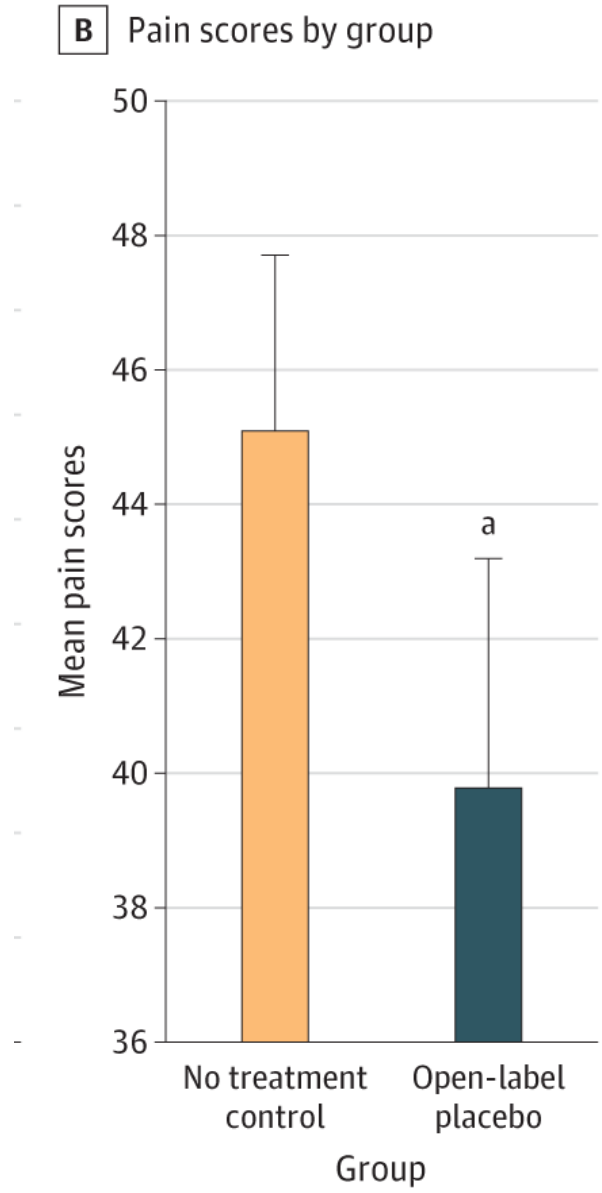


Balanced placebo design



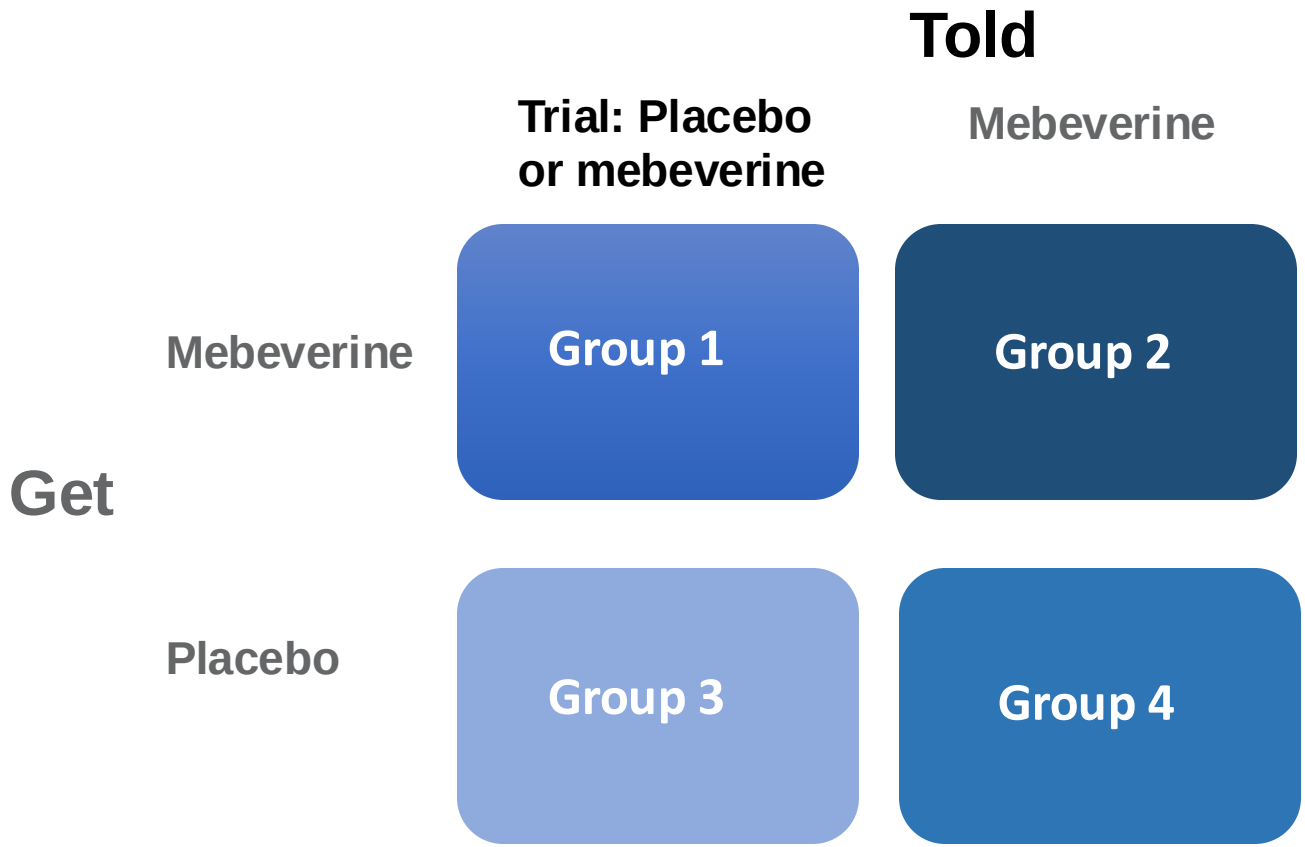
Open label placebo in FAP/IBS

- **30 adolescents with IBS or FAP**
- **Cross over trial : 3 wks OLP and 3 weeks control**
- **Main outcome: pain score (0-100)**



Nurko S, et al. Jama Ped 2022

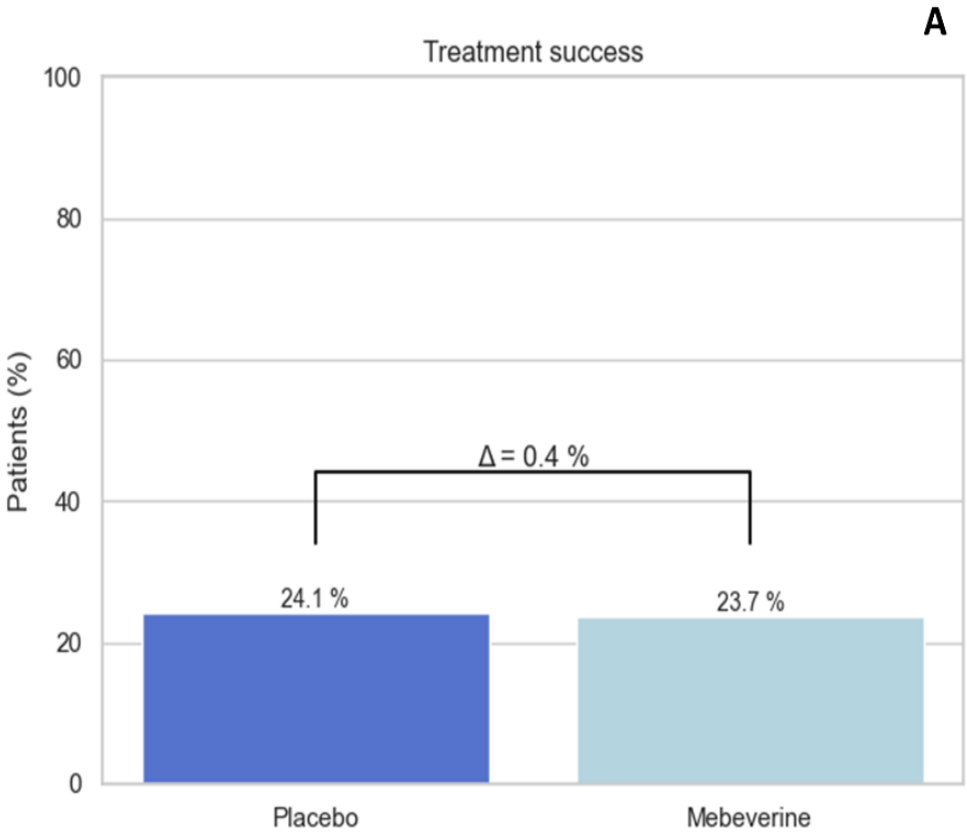
2x2 Trial: Mebeverine or influence of labeling



Rexwinkel R, et al. Gastroenterology 2025

Characteristic	Mebeverine with blinded trial label (n = 68)	Mebeverine with mebeverine label (n = 66)	Placebo with blinded trial label (n = 67)	Placebo with mebeverine label (n = 67)
Age, median (IQR), years	15.3 (13.7-16.6)	15.3 (14.0-16.5)	15.5 (13.6-16.9)	15.3 (14.0-16.4)
Female, frequency (%)	51 (75.0)	41 (62.1)	49 (73.1)	42 (62.7)
Including center frequency(%) Academic center	29 (42.6)	32 (48.5)	37 (55.2)	33 (49.3)
Diagnosis FAP-NOS	26 (38.2)	21 (31.8)	23 (34.3)	24 (35.8)
IBS	41 (60.3)	45 (68.2)	44 (65.7)	43 (66.2)
Duration of symptoms, years, median (IQR),	2.8 (0.6-8.7)	2.3 (0.8-5.1)	3.0 (1.4-8.1)	2.3 (0.6-7.0)
School absenteeism per week, h, median (IQR)	0.2 (0.0 – 1.2)	0.4 (0.0 – 1.6)	0.5 (0.0 – 1.8)	0.3 (0.0 – 1.3)
Abdominal pain scores Daily intensity score, mean (SD)¶	2.8 (0.9)	2.6 (0.9)	2.5 (1.0)	2.7 (1.0)
Daily frequency , hours, median (IQR)	3.2 (2.0 – 7.7)	3.4 (1.7 – 7.2)	3.0 (1.3 – 6.3)	3.5 (1.6 – 8.1)

Treatment succes >50% decrease in abdominal pain



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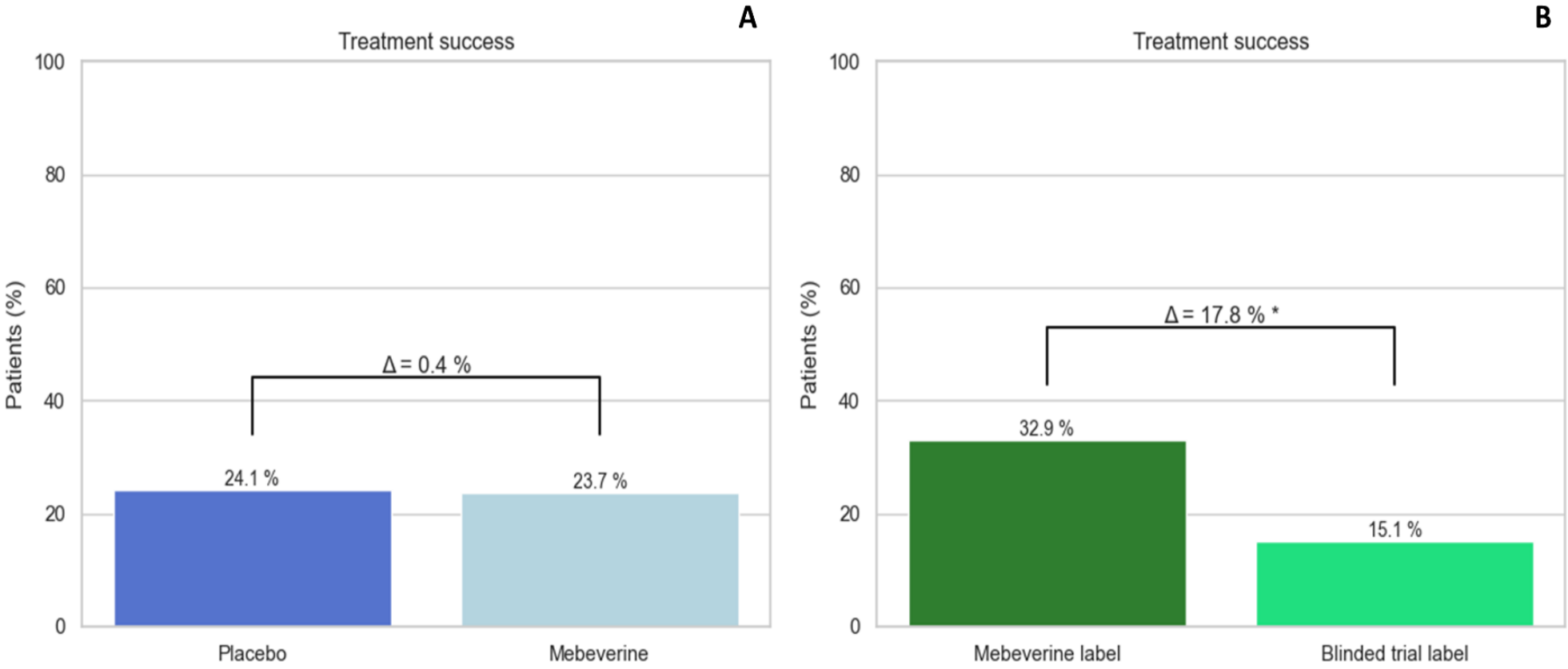
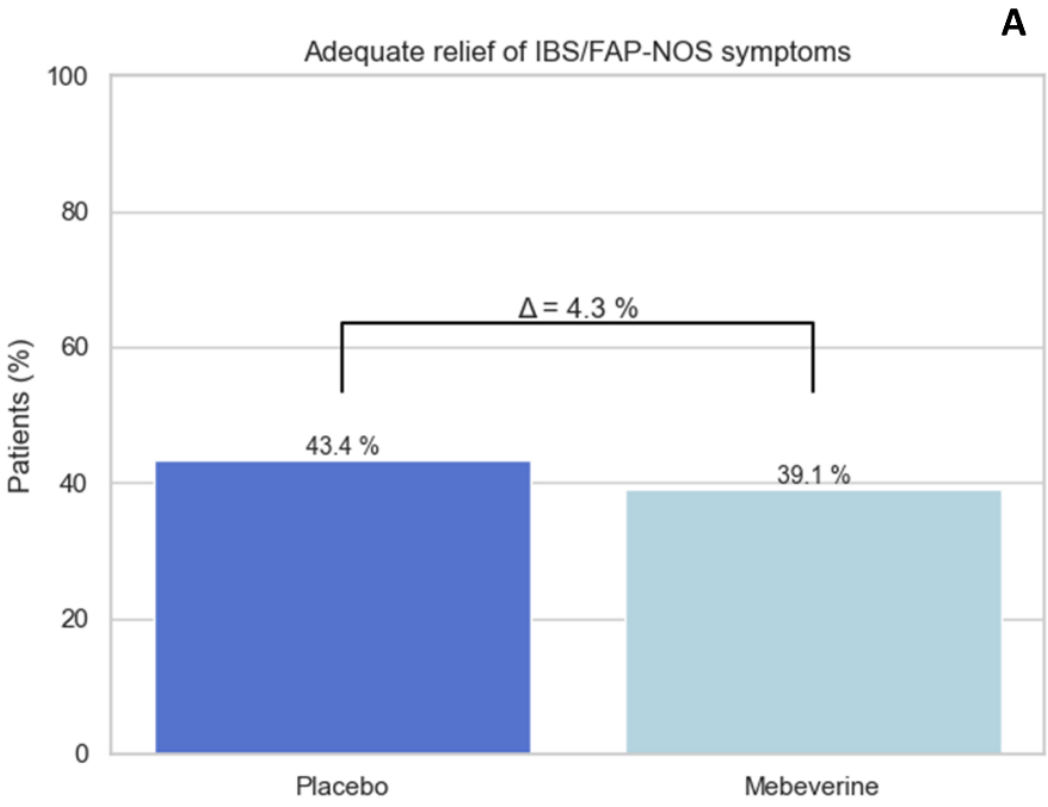
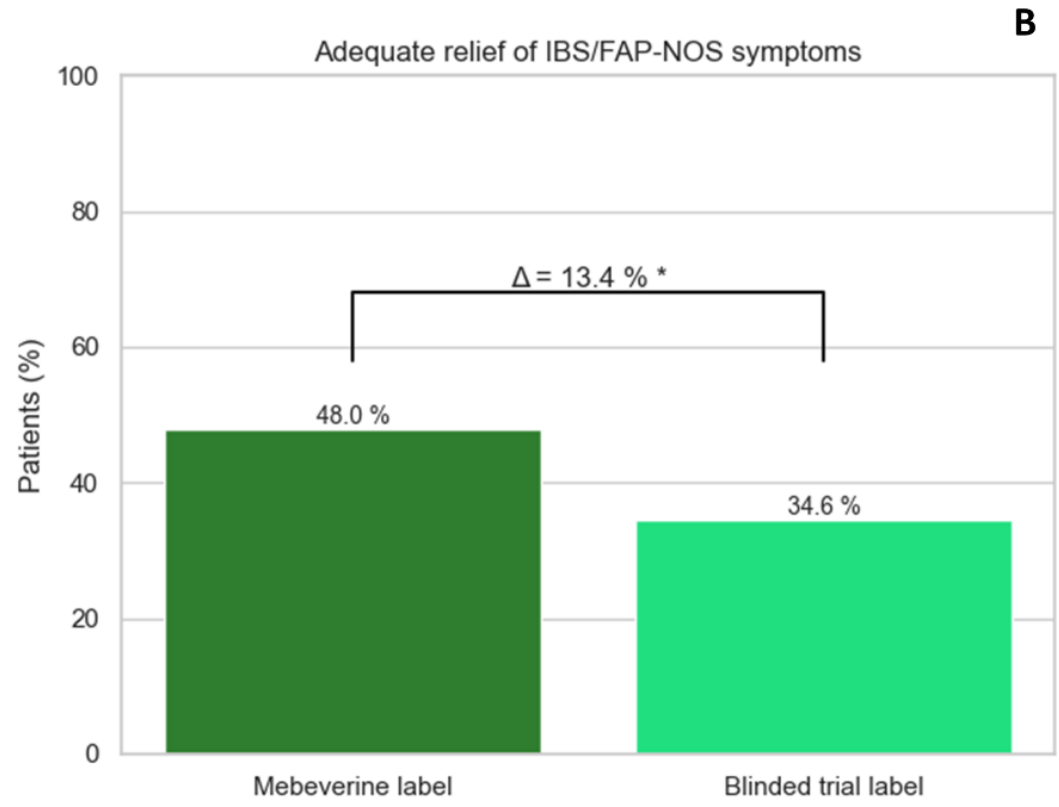
Treatment succes >50% decrease in abdominal pain



Rexwinkel R, et al. Gastroenterology 2025

Adequate relief of IBS/FAP-NOS symptoms





Rexwinkel R, et al. Gastroenterology 2025

Positive expectations can double treatment effect!

Negative expectations

Effect of doctor's suggestions

Warning for possible side effects results in more side effect, even in the placebo group

Faasse et al. Postgrad med 2013
Evers et al. Psychother Psychosom 2018

Spend more time with patients and take more care forming a therapeutic alliance

Choose your words wisely

I hope this new drug will give you some relief

Versus

I am curious how soon you will experience adequate pain relief, maybe tomorrow or later this week

Conclusions

- **Successful management of patients with functional pain disorders with a trusting, positive, patient-physician relationship**
- **Hypnotherapy is an effective treatment in children with abdominal pain, promising in enuresis**
- **Placebo effect: expectations & conditioning**
- **Increase placebo effect by empathy and suggestions**
- **Beware of the nocebo effect**


Questions…

3. Prescribing placebo’s?

How often do GP's use placebos?

16 studies with 3000 GP's:

In the last month:

2-15% used pure placebos

53 to 89% used a non-specific therapy

Linde et al PLoS One 2018

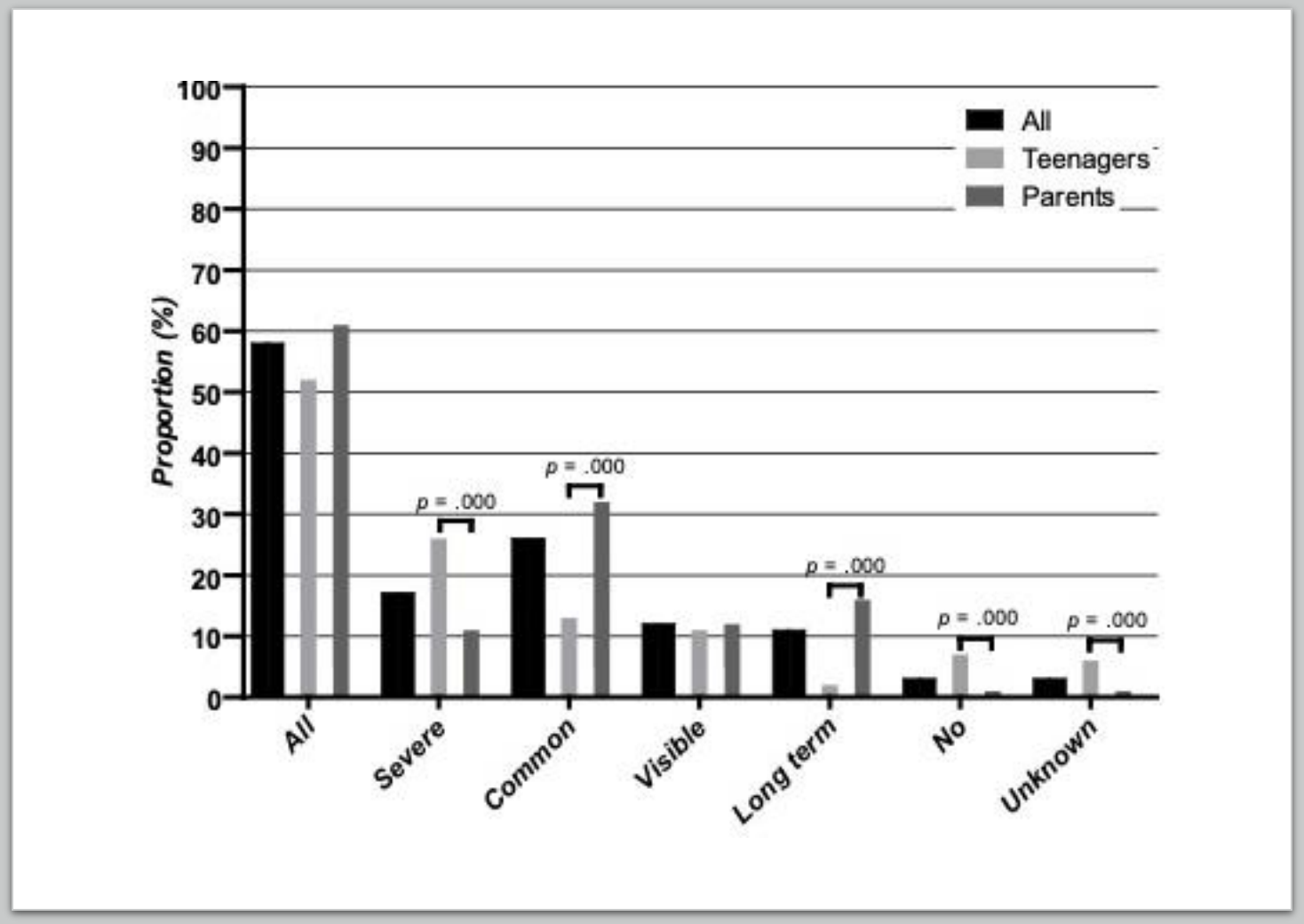
How does the best placebo look like in children?

Which colour
Tablets versus capsules
How often a day?

Inform only the parents, not the children?

De Bruijn Eur J Ped 2023

Explaning side effects?



De Bruijn, Patient educ Couns 2023