GI DISEASE & OLDER ADULTS
EPIDEMIOLOGY & BURDEN OF DISEASE

Batool Mousavi, MD, MPH,

Community and preventive medicine

Janbazan Medical and Engineering Research Center (JMERC)

Day: (1405- آبان)

Time: 9:00-12:00

Population projection +65 yrs:

761 million in 2021 to 1.6 billion 2050



Letter to the Editor

The Growth of Aging Population in Iran: An Achievement or a Challenge?

Bakhtiar Piroozi, Amjad Mohamadi-Bolbanabad & Azad Shokri

Pages 711-714 | Published online: 10 Apr 2024

Cite this article https://doi.org/10.1080/01634372.2024.2340725 Check for updates



An Achievement or a Challenge?

- **Mean age: 32 yrs**
- **Elderly rate:**
  - **2016: 9/5% 2024: 11%**
  - **Estimation: 2030: 15%**
  - **Estimation: 2050: 30%**

25y : سه برابر

https://www.tandfonline.com/doi/full/10.1080/01634372.2024.2340725



بحران سالمندی و ایران

ورود به آستانه سالمندی قبل از توسعه یافتگی

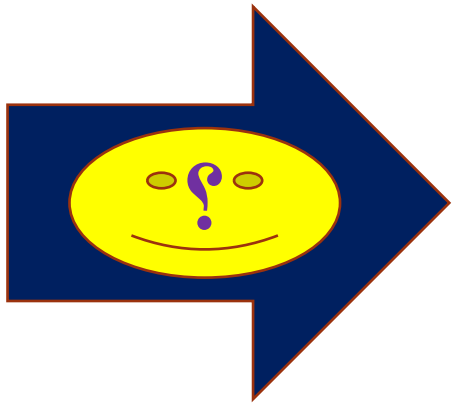
حقوق بازنشستگی، بازدهی صندوق ها پایین، ناتوانی بیمه، افزایش تورم، قادر نبودن فرزندان به پرستاری/کمک و به تامین هزینه های اضافه والدین

آینده پژوهی ساختار جمعیتی در ایثارگران (جانباز/شاهد) N~963,000

- **در حال حاضر:** **25.5٪ جمعیت** سالمند: (**n=248,507**)

- **سال ۱۴۱۰:** **70.8٪ جمعیت** سالمند: **چالش جدی ۶۰-۶۹ ساله ها**
  - رشد سالمندی: **(n=595,172)** + ۷۰ سال حدود۱۵٪

- **سال ۱۴۲۰:** **81.5٪ جمعیت** سالمند : **چالش جدی ۷۰ سال و بالاتر**
  - **(n=580,365)** + ۷۰ سال حدود۶۵٪



زنگ خطر "چالش فرصت یا بحران":
آمادگی برای مواجه این شیفت جمعیتی چقدر است؟
آیا زیرساخت های لازم برای ارایه خدمات مهیا است؟

AGE-RELATED & GI

Globally, digestive diseases remained a major public health burden, with larger variation across countries, sexes, and age groups. **2023**

+65 GI problems has doubled in the last 20 years

Multiple concurrent risk factors:

- **Life style-(nutrition, mobility, stress),**
- **Multiple medications,**
- **GI changes**
- **Co-morbidity, and**
- **Cognitive decline**



Question:

GI chief complains in your setting? Dx?

GI chief complains of older adults in your setting? Dx?

Challenges?

https://pmc.ncbi.nlm.nih.gov/articles/PMC/10483149 1990-2019

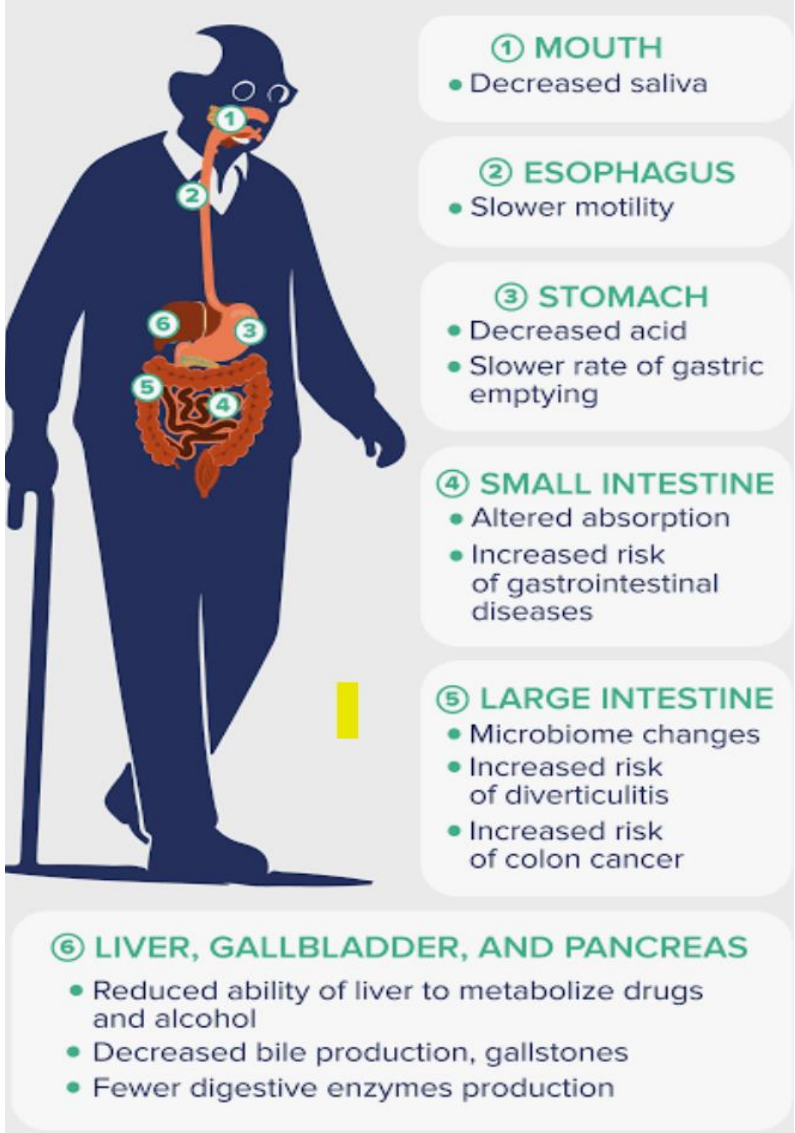
https://www.mdpi.com/5647/6/1/22-2624

AGE-RELATED CHANGES & GI *GASTROINTEST. DISORD.* 2024

Aging is associated with:

- Motility changes at different levels of the GI tract.
- Impaired esophageal peristalsis, disturbance in the function of the lower esophageal sphincter.
- Slowing of gastric emptying.
- Mucosal injury & impaired GI mobility due to **medication**

Main pathogenic mechanisms involved in age-related changes in gastrointestinal system	
Neurological (central)	- Impairment in cognitive functions - Impairment in swallowing mechanisms
Neurological (peripheral)	- Impaired esophageal peristalsis - Disturbance in function of lower esophageal sphincter - Slowing of gastric emptying - Increased colonic transit time
Metabolic	- Impaired glucose, lipid and bile acid metabolism - Electrolyte disorders
Immunological	- Imbalance between anti-inflammatory and pro-inflammatory cytokines - Impairment of innate immune system
Microbiome-related	- Alterations in composition, diversity and functional features of intestinal microbiota
Drug-induced	- Mucosal injury - Impaired motility - Dysregulation of immune and microbiome homeostasis
Aging-related frailty	- Age-related decline in physiological function and adaptive capacity



https://www.mdpi.com/5647/6/1/22-2624

AGE-RELATED CHANGES & GI GASTROINTEST. DISORD.2024

Main gastrointestinal tract disorders in older people

Question:

GI chief complains in your setting? Dx?

GI chief complains of older adults in your setting? Dx?

Challenges?

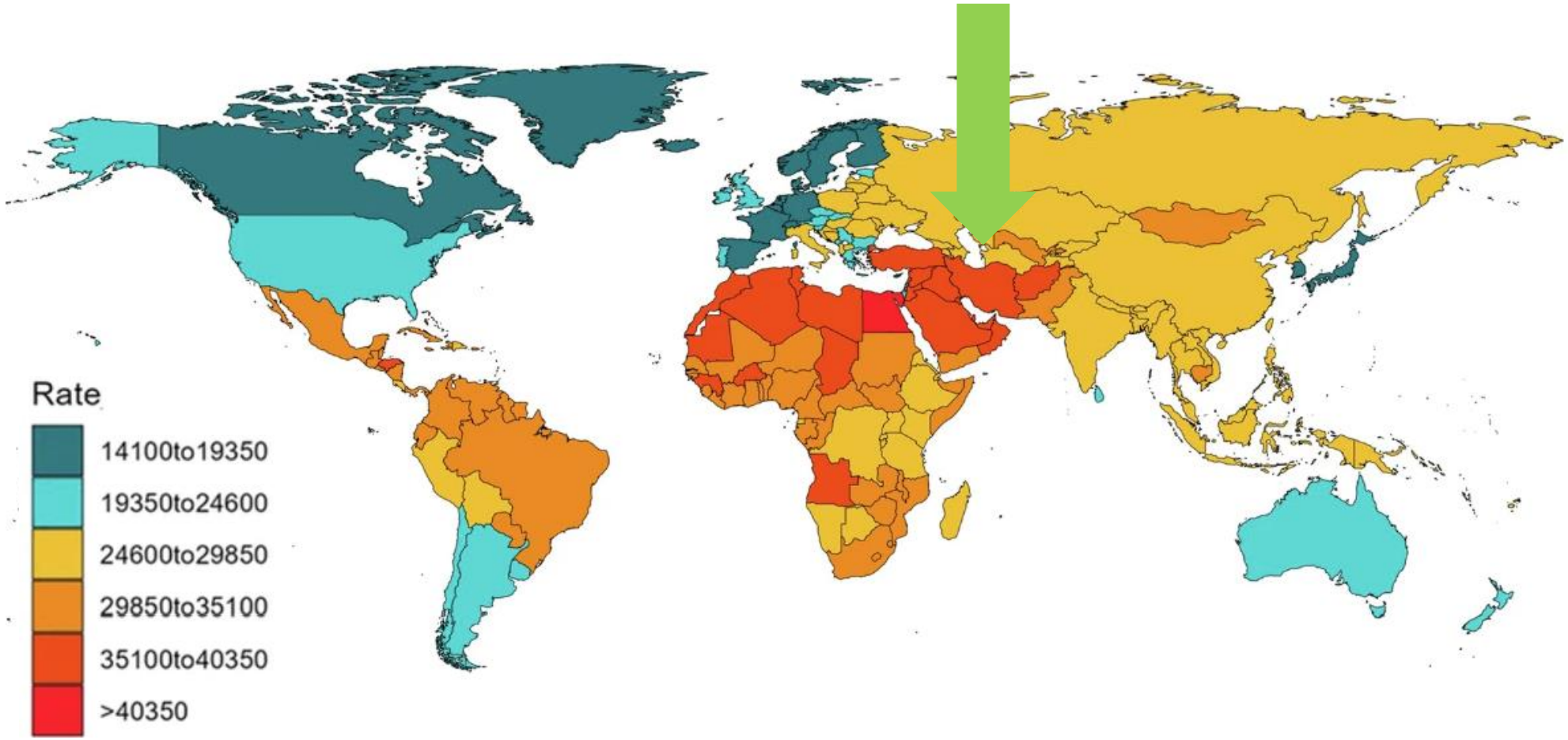
Upper gastrointestinal tract	- Dysphagia
	  - Oropharyngeal dysphagia
	  - Esophageal dysphagia
	- Functional dyspepsia
	- Gastro-esophageal reflux disease
	- Helicobacter pylori related-conditions
	- Chronic atrophic gastritis
	- Peptic disease
	- Gastric cancer

Small bowel	- Celiac disease - Mesenteric ischemia - Small intestinal bacterial overgrowth
Lower gastrointestinal tract	- Diverticular disease - Inflammatory bowel disease - Microscopic colitis - Irritable bowel syndrome - Infections - Drug-induced diarrhea - Colon-rectal cancer - Constipation and incontinence

https://www.mdpi.com/5647/6/1/22-2624

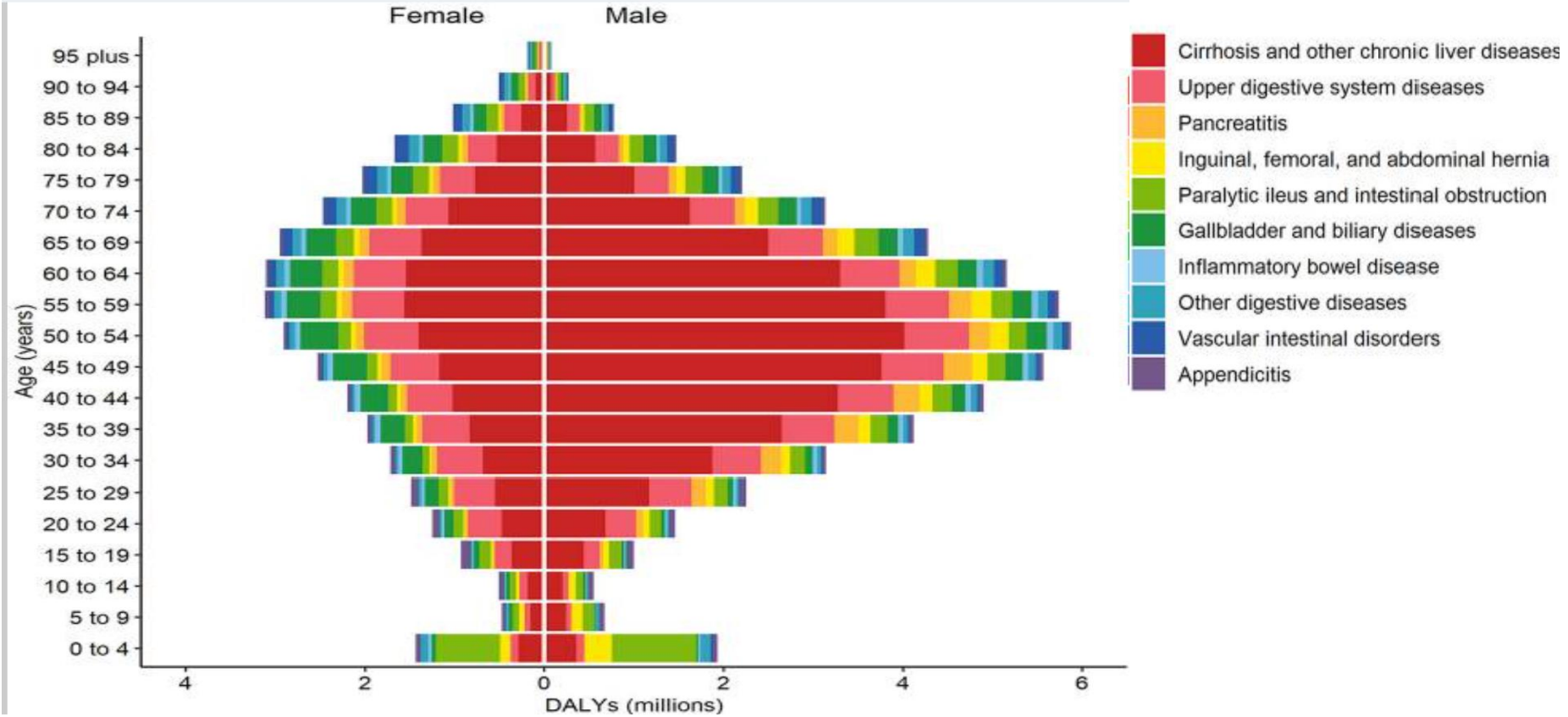
Prevalence rates in 2019 of digestive diseases in 204 countries:

nature 2023 global: 23% IRAN=



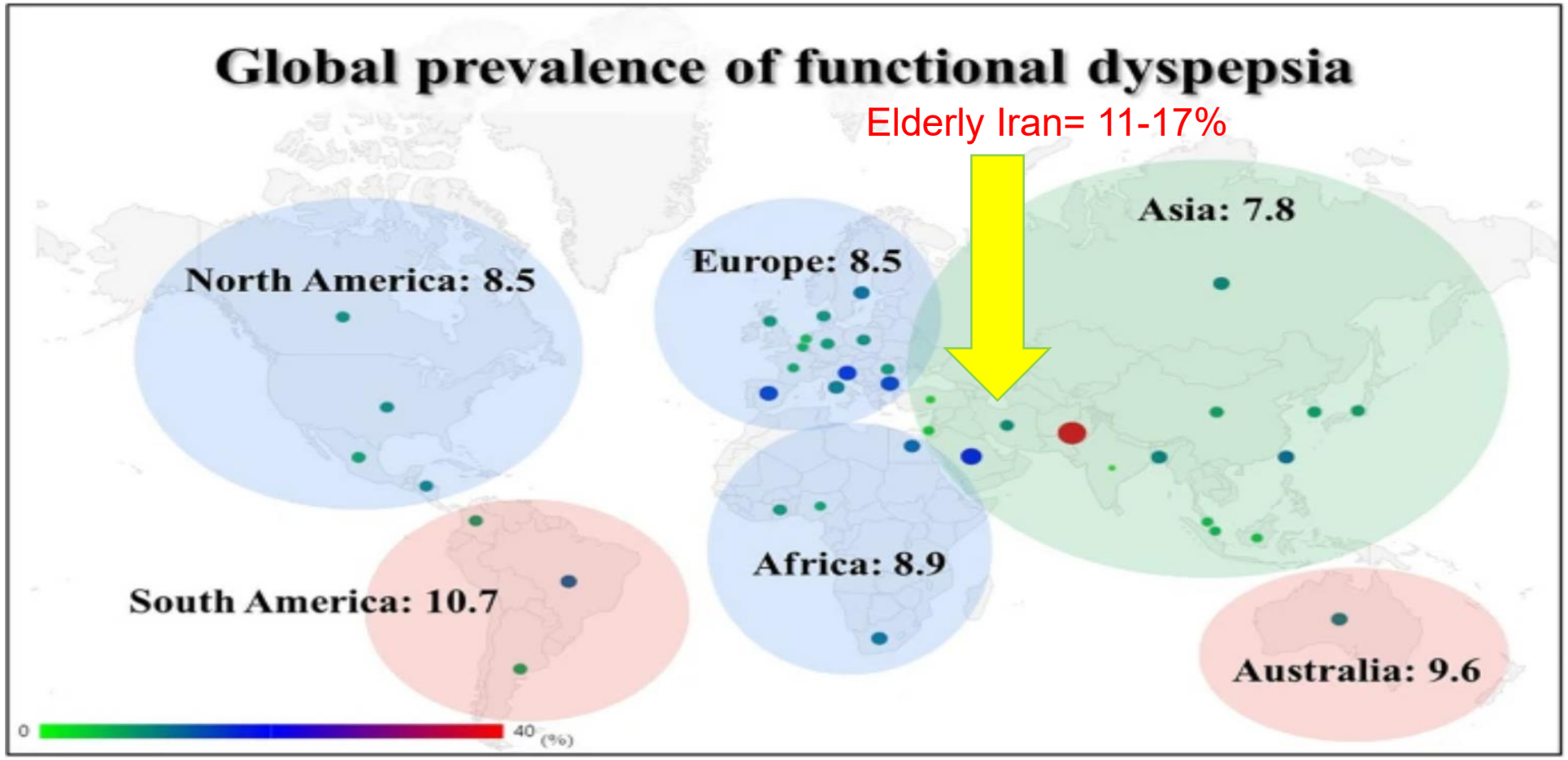
https://www.nature.com/articles/s-00019-025-44355x/figures/6 2023

DIGESTIVE DISEASES 13TH LEADING CAUSE OF DALYS GLOBALLY



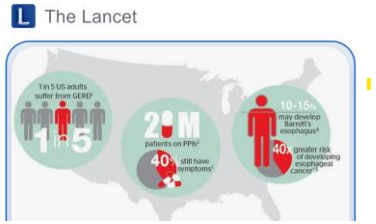
https://www.ncbi.nlm.nih.gov/core/lw/2.0/html/tileshop_pmc/tileshop_pmc_inline.html?title=Click%20on%20image%20to%20zoom&p=PMC3&id=10088561_fpubh-11-1061453-g0002.jpg

DYSPEPSIA : NATURE 2024

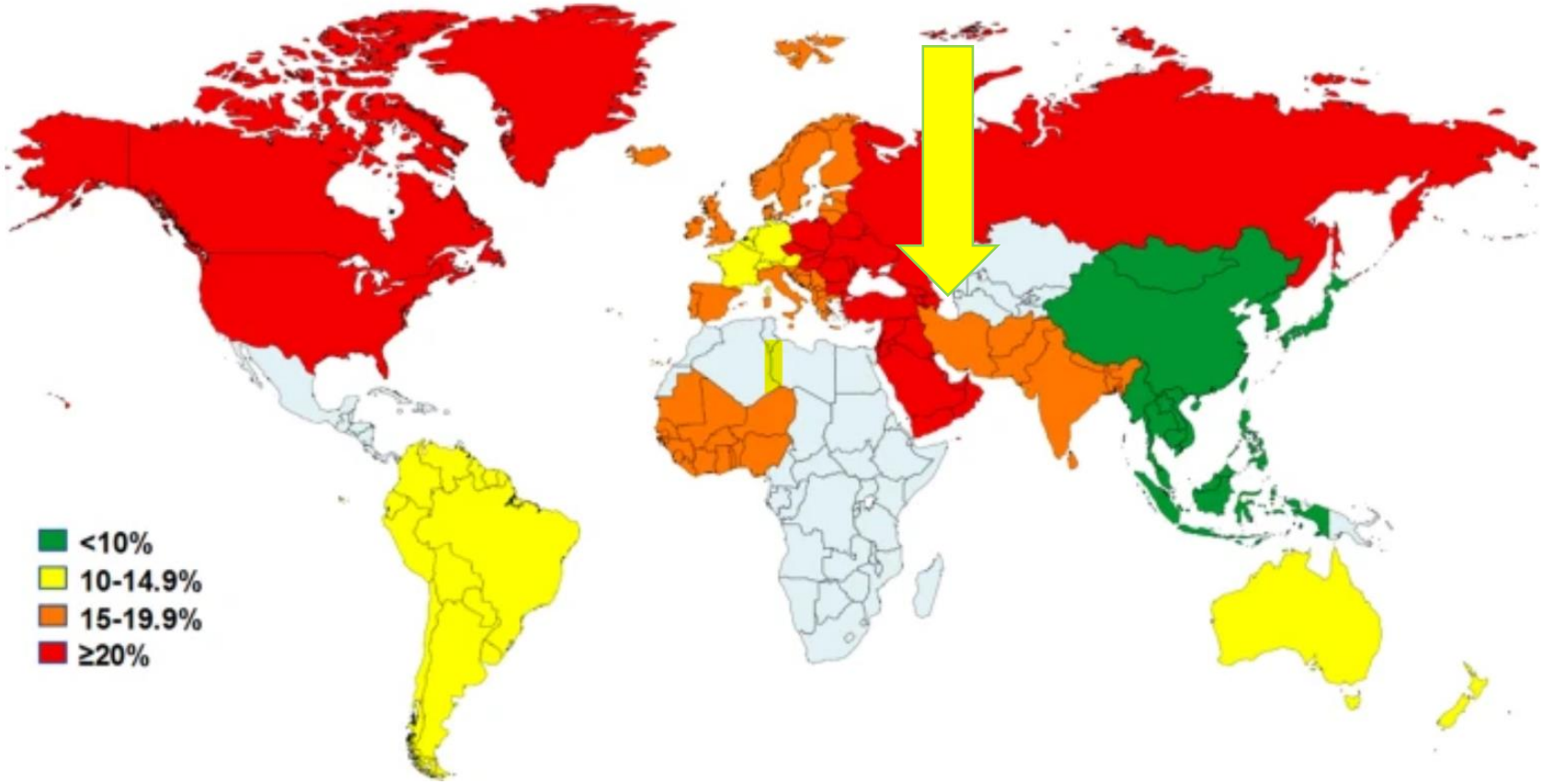


https://www.nature.com/articles/s41598-024-54716-3

GERD: NATURE 2020



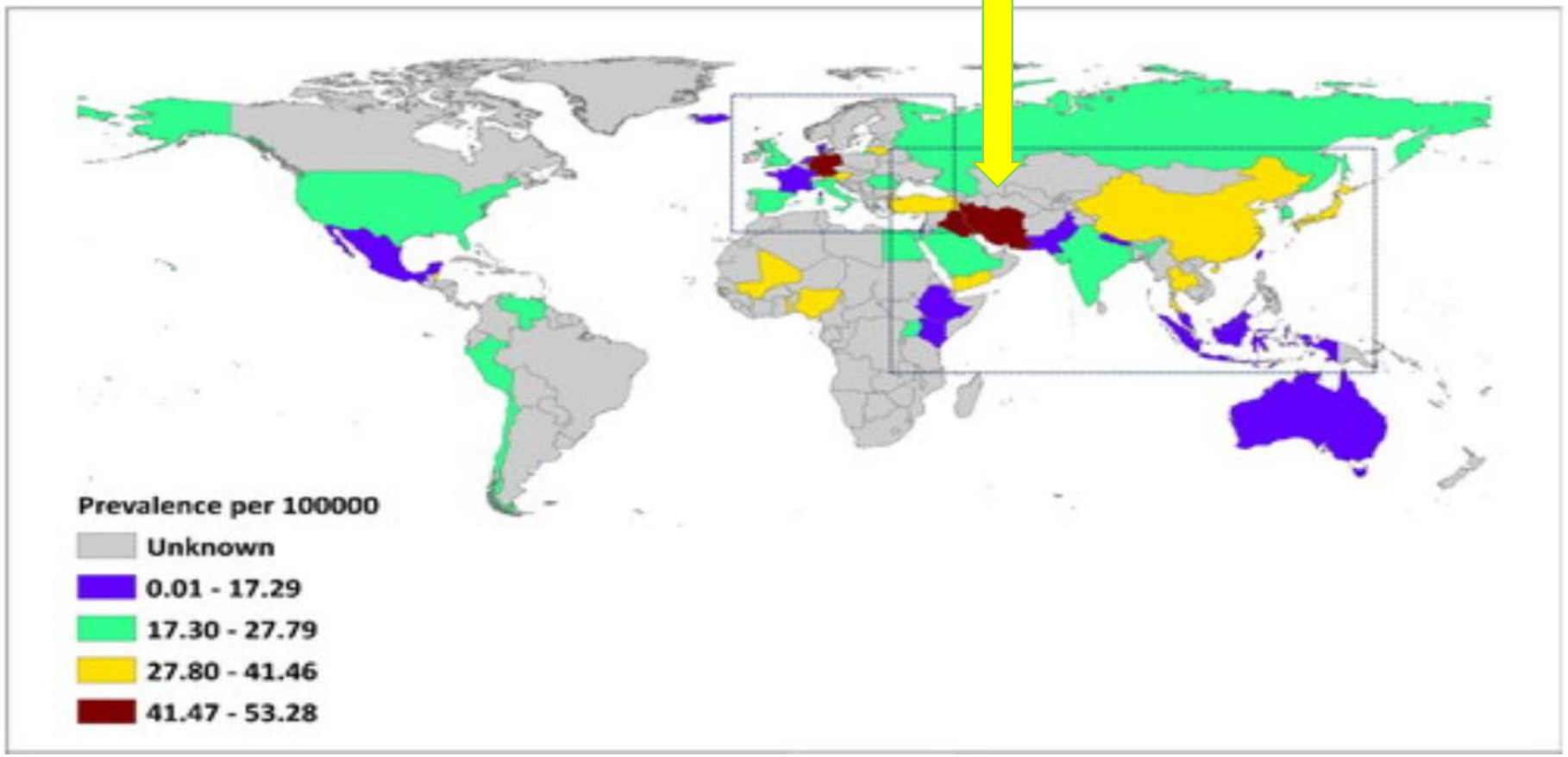
Elderly world: 23% **Elderly Iran : 21%**



https://www.nature.com/articles/s41598-020-62795-1

HAEMORRHOIDAL DIS. 2025-(150 STUDY & N=8,960,338)

Elderly +65 :25%

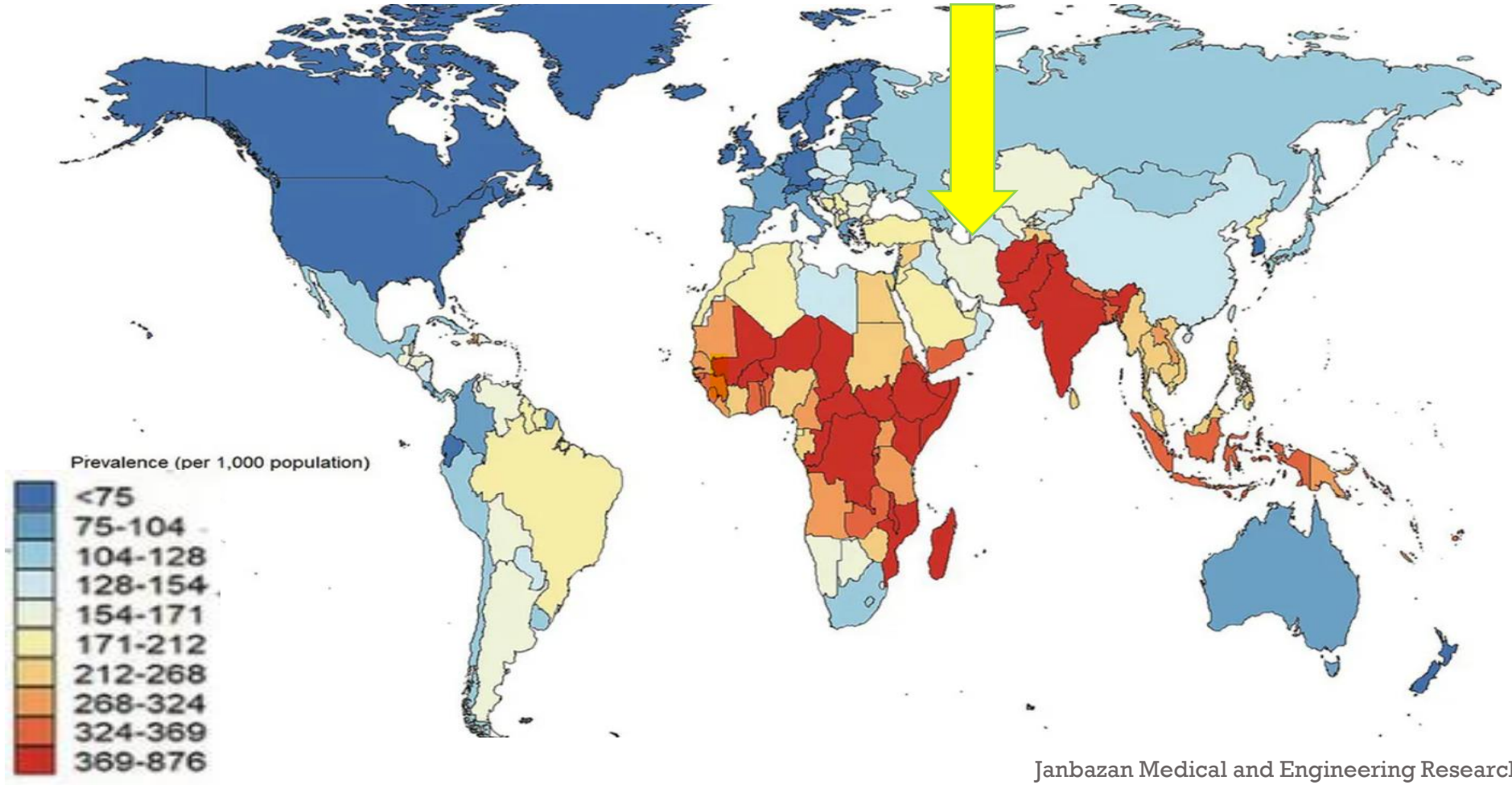


https://www.researchgate.net/figure/Worldwide- prevalence-of-Haemorrhoids_fig2_399091673

MALNUTRITION 2025

Malnutrition: 25% **IRAN= 21%**

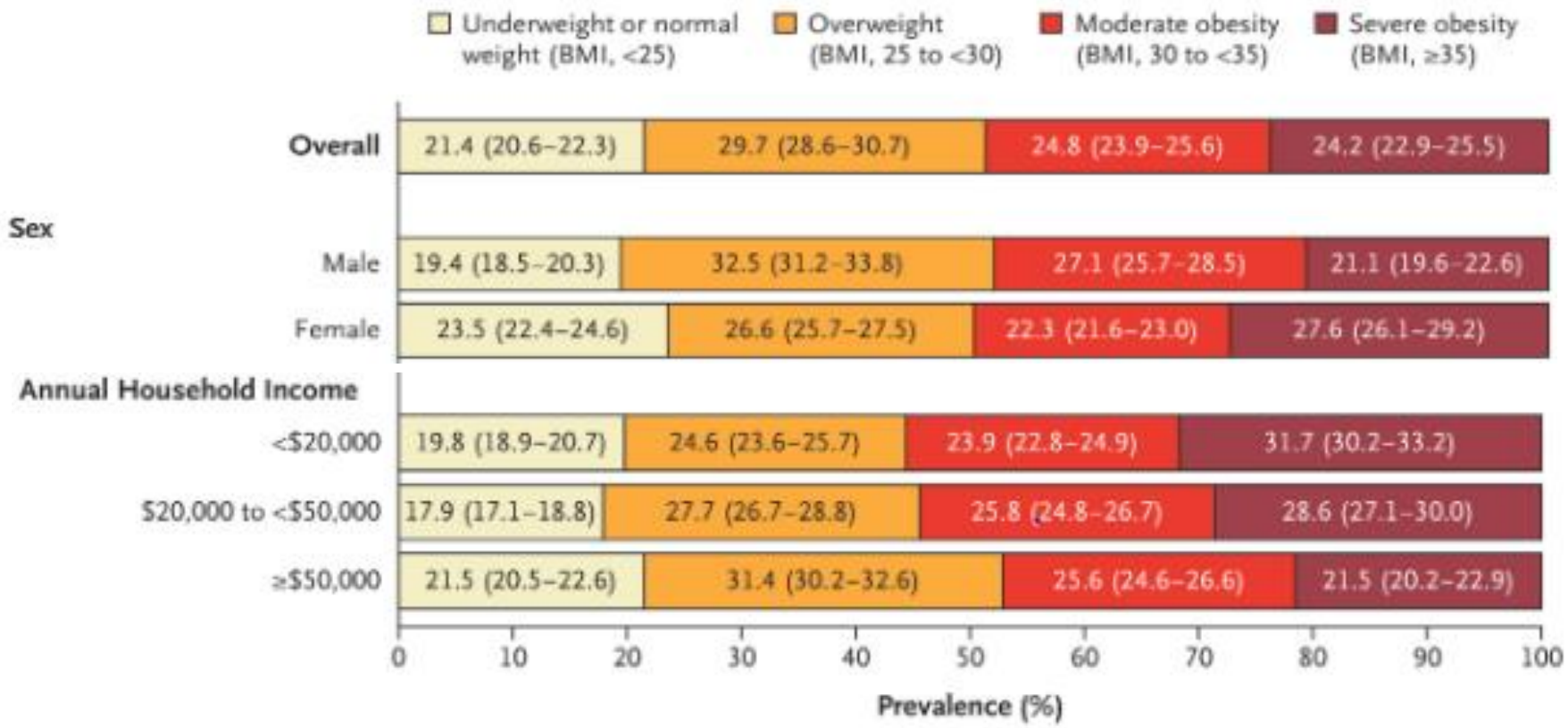
Prevalence of malnutrition among individuals over 70 in 2021



https://www.frontiersin.org/journals/nutrition/articles/10.3389/fnut.2025.1562536/full

ADULTS UNDER WEIGHT- OBESITY PROJECTION FOR 2030

NEJM 2020



https://www.nejm.org/doi/full/1909301asMJEN/10.1056

PREVALENCE GI DIS. & ELDERLY IRAN 40%

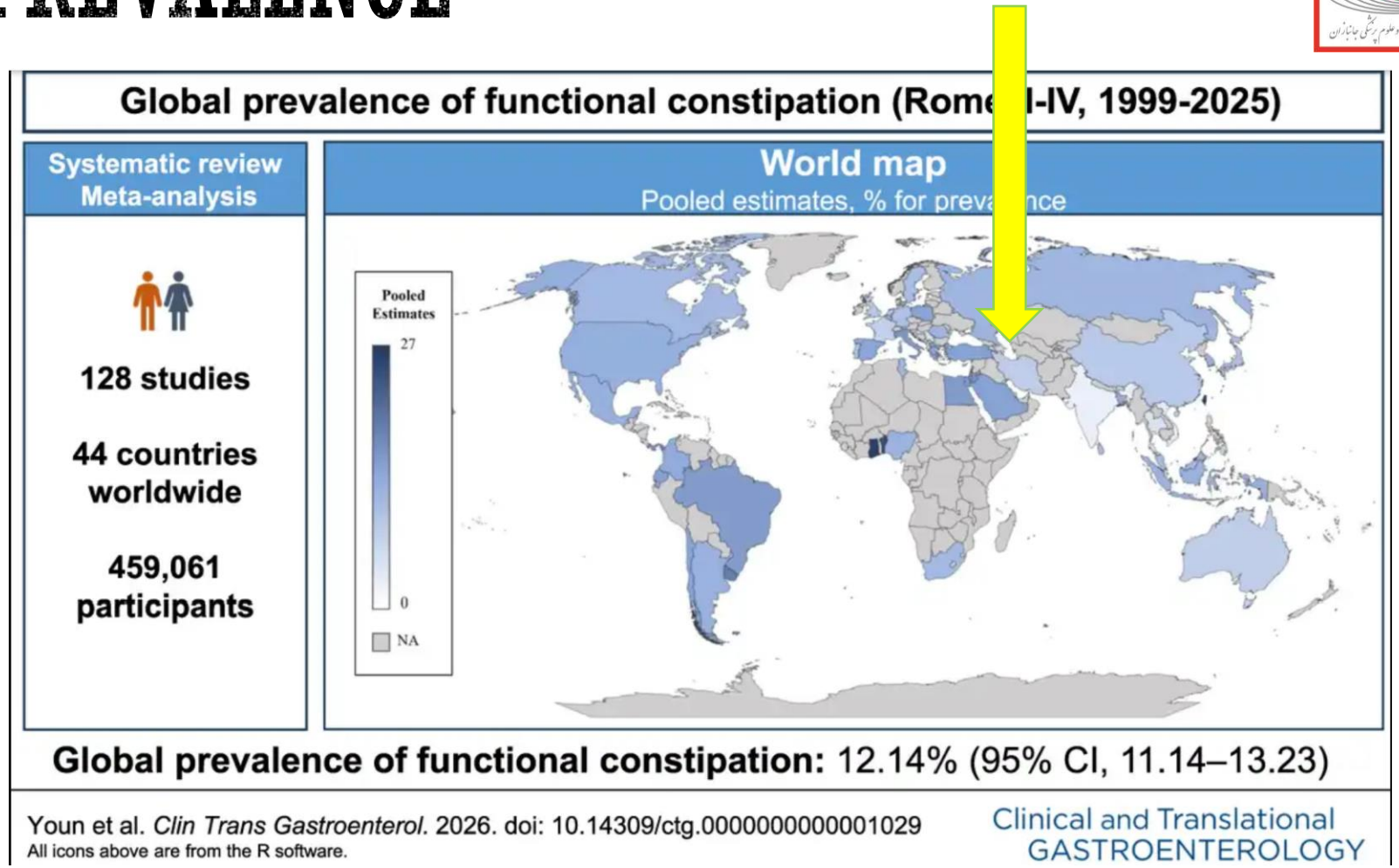
- **Dysphagia:** 10-33% or 15% - 40% **Iran = no data**
  - Nursing home settings: 60% Iran= 41.2%
  - Dementia 72.4% (95% CI 26.7–95.0%)
- **Dyspepsia:** rates of functional dyspepsia are widely dispersed- data range 5 to 40%
  - Sys. Review 2021: **Iranian** men 11.1% (95% CI: 6.3-18.8) and women 17.8% (95% CI: 10.0-29.7),
- **GERD Gastroesophageal Reflux Disease :** Among all causes of dyspepsia, gastroesophageal reflux disease (GERD) represents one of the most relevant, in consideration of its high prevalence, in the elderly- 23%
  - **Iran : 21%**
- **Haemorrhoidal Dis.** meta-analysis 150 studies of 45 countries: 25% - 4.4%~38%
- **Malnutrition:** 25% **IRAN= 21%**

https://www.worldgastroenterology.org/UserFiles/file/wdhd-fdp.sredrosid-evitsegid-fo-pam-2008
https://pubmed.ncbi.nlm.nih.gov/34488322/
https://pmc.ncbi.nlm.nih.gov/articles/PMC12777808/
https://salmandj.uswr.ac.ir/article--1985-1fa.pdf
https://www.mdpi.com/5647/6/1/22-2624
https://www.sciencedirect.com/science/article/abs/pii/S1876382018304323

CONSTIPATION PREVALENCE

Chronic constipation:

- self-diagnosed by the patients.
- Many patients do not have education on the physiology of the gut and consider difficult evacuation as natural



https://pubmed.ncbi.nlm.nih.gov/17625982/
https://pubmed.ncbi.nlm.nih.gov/25148393/
2014

CONSTIPATION PREVALENCE

- Global prevalence in general adult population: **14%,**
- Rates adults aged **60 years and older: 33%**

In Iran 45% (Amiri,2024)

- Rates people living in **nursing homes: 70%**
- Chronic constipation **Seek medical** care: Only **20%** due to
  - **Stigma and embarrassment (80%)**
- The prevalence is **higher** in females than males

Geriatrics **2026**, *11*(2), 47;https://doi.org/10.3390/geriatrics11020047

CONSTIPATION PREVALENCE

Challenges:

- Many constipated patients remain underdiagnosed, as many avoid discussing their symptoms with a doctor.
- Diagnosed cases: but controlled in less than 50%.
- When not controlled: significant risk of fecal impaction rise, prevalent in almost 50% of +70 yrs
- Within 12 months of the first physician visit for constipation:
  - 6% patients had hemorrhoids and
  - 2% had intestinal impaction or obstruction. Higher rates **of hospital readmission** within 90 day

https://www.thelancet.com/journals/langas/article/PIIS2468-1253(19)30297-3/fulltext
https://pubmed.ncbi.nlm.nih.gov/25803399/
Geriatrics **2026**, *11*(2), 47;https://doi.org/10.3390/geriatrics11020047

COST OF CONSTIPATION

- **Physician visits** mean cost: **$39/patient**
- Total cost of GI procedures and **laboratory** testing: **$183/patient**
- **Over-the-counter** and **prescription** drug purchases: **$5/patient**
- Approximately admitted to the hospital for constipation: **$2993/admission**
- The total direct health care costs for patients with constipation in the Medi-Cal system for 15-month :**$246/patient**

https://pubmed.ncbi.nlm.nih.gov/17625982/ https://pubmed.ncbi.nlm.nih.gov/25148393/ 2014

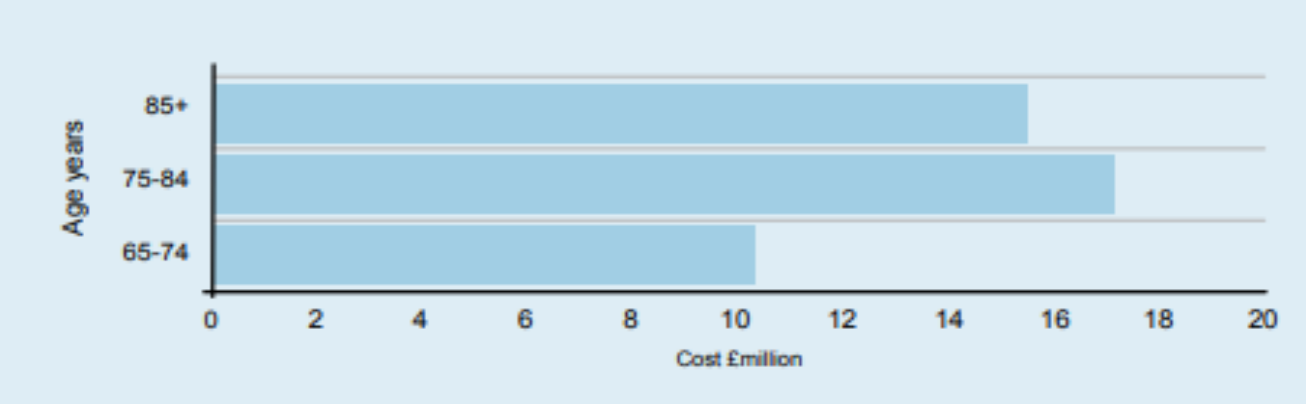
FINANCIAL BURDEN OF CONSTIPATION

- Older adult **Annual healthcare cost** per patient with chronic constipation including: Outpatient visits, hospitalizations, and costs of treatment failure:
  - USD 11,991
  - An average cost: USD 2752 per patient
- **Emergency department cost**: mean cost per patient rose by 56.4% in 10 years, from $1,474 to $2,306

https://www.thelancet.com/journals/langas/article/PIIS2468-1253(19)30297-3/fulltext
https://pubmed.ncbi.nlm.nih.gov/25803399/
Geriatrics **2026**, *11*(2), 47;https://doi.org/10.3390/geriatrics11020047

UK: FINANCIAL BURDEN OF CONSTIPATION

- **Financial burden of constipation in terms of nursing time, investigation, intervention, medication and on-going management**
- **UK: Admissions due to constipation as a primary diagnosis: similar length of stay for asthma admissions.**
- **Admissions due to constipation in UK: £42million to the National Health Service- a great proportion of this cost is a result of admission of the oldest age groups (fig).**



https://ilcuk.org.uk/wp-content/uploads/fdp.troper-noitapitsnoc-fo-nedruB/2018/11

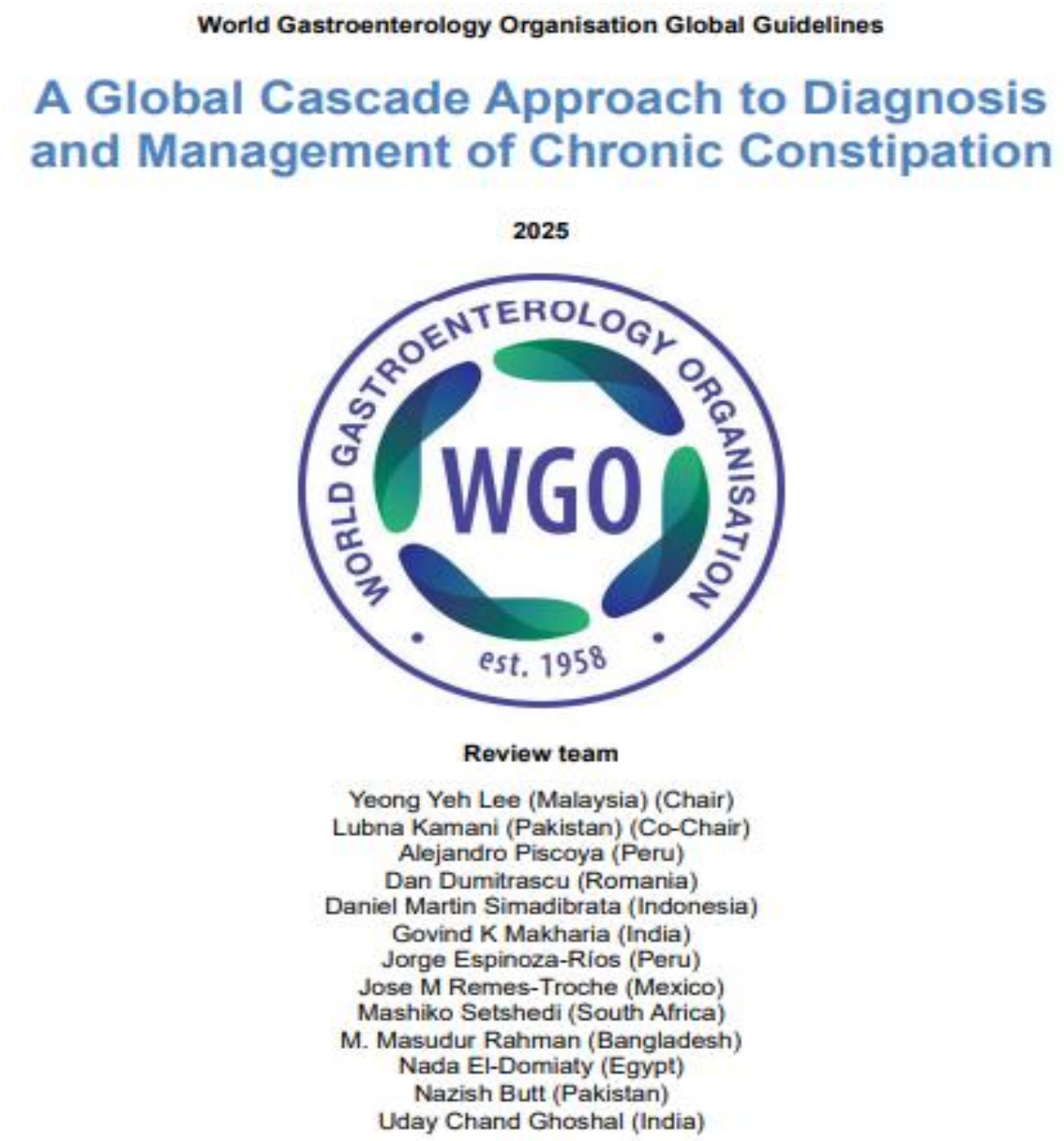
Prevention of constipation in older adults:

- Addressing the **Taboo**: **Raising public awareness** to the importance of nutrition and diet
- Patients need **lots of education** on water, diet, fiber, and physical activity/exercise.
- Key is that the older adult need **stick to the recommendation.**
- Management of bowels **takes effort** and need to plan to make **for a lifetime**.
- **Nonpharmacologic therapies** should be **the first step** to avoiding unnecessary drug therapy

https://www.aptlr.com/case-study-noitapitsnoc-cinorhc-dlo-raey-77

World Gastroenterology Organization, 2025

A Global Cascade Approach to Diagnosis and Management of Chronic Constipation

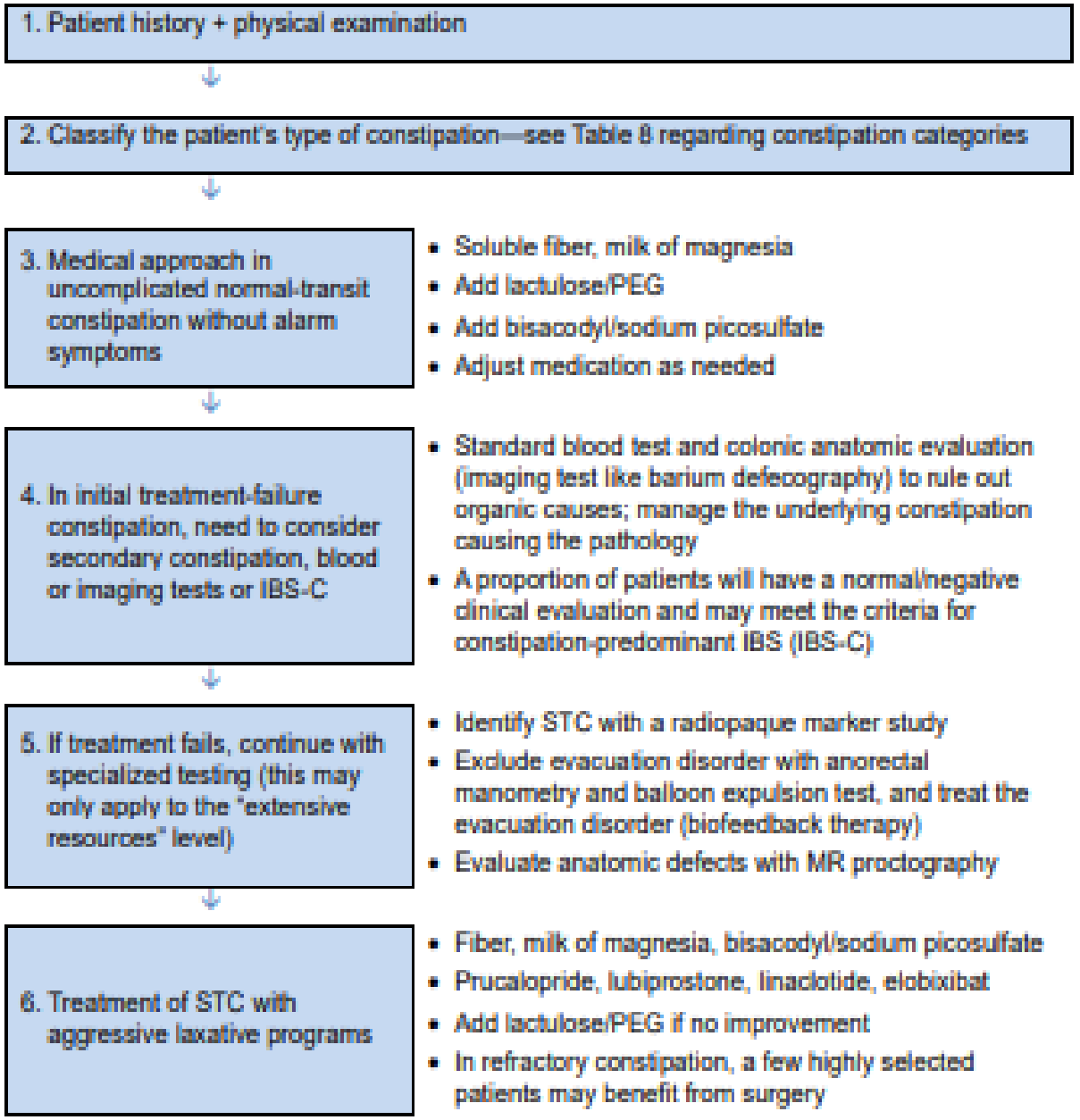


https://www.worldgastroenterology.org/UserFiles/file/guidelines/constipation-english-fdp.2025

World Gastroenterology Organization, 2025

A Global Cascade Approach to Diagnosis and Management of Chronic Constipation

General scheme for approach and management of constipation

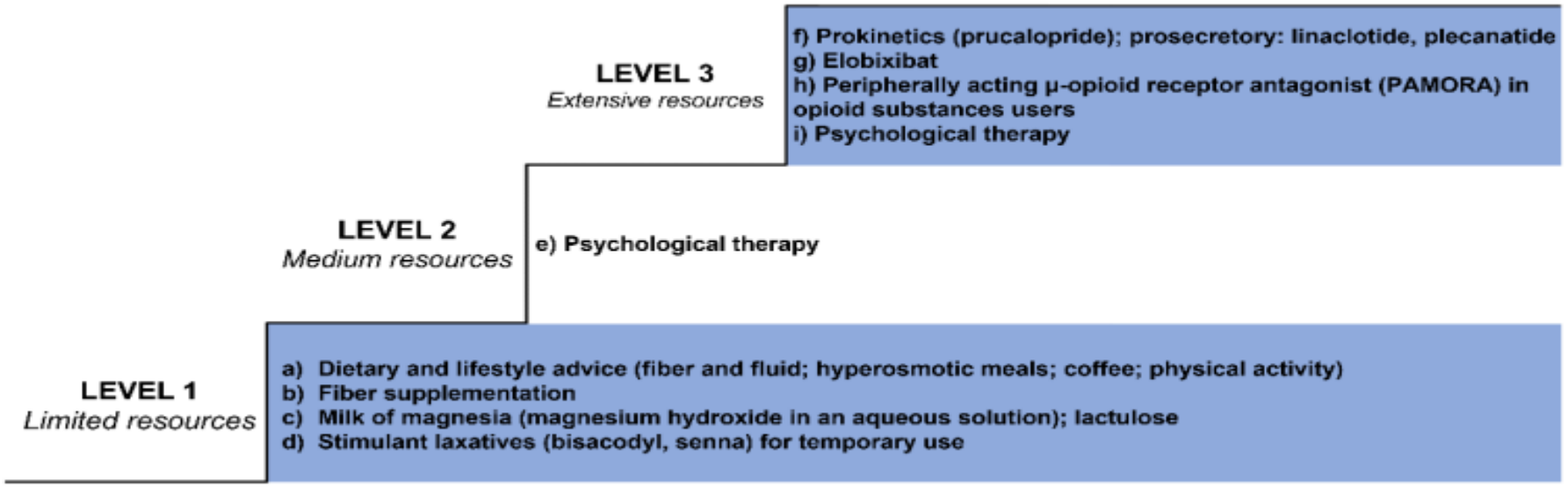


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General scheme for approach and management of constipation



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CFP·MFC
Official Publication of The College of Family Physicians of Canada

Stepwise approach to constipation

Can Fam Physician. 2015 Feb;61(2):152–158.

Constipation in older adults

Stepwise approach to keep things moving

Brenda G Schuster [1,✉], Lynette Kosar [2], Rejina Kamrul [3]

The following stepwise approach can be used when managing a patient with constipation. A **systematic approach** is especially important in older adults with multiple comorbidities and medications.

Mrs N.M. is an 88-year-old woman with her daughter. ***Constipation, not new for her****.*
A few months ago, local emergency department with abdominal cramping and bloating, abdominal x-ray scan, ***Dx. fecal impaction secondary to psyllium fibre*** *supplement use with low fluid intake.* ***Treat: enema,*** *instructed to take 17 g of polyethylene glycol 3350 (PEG 3350) daily, and educated on lifestyle changes to reduce constipation.*
Three months ago she fell in her bungalow and fractured a rib. She is now living in a ***seniors' apartment*** *building near her daughter.*
Today,Mrs N.M. describes her bowel movements: ***2 to 3 times per week, with hard lumpy stools and some straining****. None of nausea, vomiting, blood in the stool, rectal bleeding, fever, weight loss, or appetite change.*
Her ***past medical history*** *includes:* ***osteoarthritis of her shoulders, knees, and hips, hypertension, chronic atrial fibrillation, type 2 diabetes mellitus, osteoporosis, and depression.***
Her ***past surgical history*** *includes: cholecystectomy and appendectomy. no smoking. Good cognition. no family history of colon cancer.*
She occasionally tries to walk for exercise but is unable to do so on a daily basis owing to her arthritis.
She drinks 2 cups of coffee each day but is afraid to drink too much water as she would like to avoid urinating often.
On physical examination: ***overweight,*** *with a body mass index of 28 kg/m^2, and no obvious distress. BP140/90 mm Hg with no postural change; HR: 85 beats/min and is irregularly irregular. NL abdomen.*
Rectal examination: ***some stool is felt****, with no palpable mass or blood seen on the glove. There are no anal fissures, rectoceles, or hemorrhoids.*
Her current list of medications: 10 mg of citalopram daily, 5 mg of warfarin daily, 0.125 mg of digoxin daily, 25 mg of metoprolol twice a day, 12.5 mg of hydrochlorothiazide daily, 500 mg of metformin twice a day, 70 mg of alendronate once a week, 500 mg of calcium twice a day, 1000 IU of vitamin D daily, 17 g of PEG 3350 daily, 1 to 2, 325-mg acetaminophen tablets as needed, 25 mg of amitriptyline at bedtime, and 25 mg of dimenhydrinate as needed to help with sleep.
Her recent bloodwork shows normal CBC, thyroid and renal function, and liver enzyme levels. Her hemoglobin A_{1c} level is 7%.

What?

1.Dx constipation- 2.Alarm features- 3.Disease/comorbidity4.medications……5.recomendation%&treat

https://pmc.ncbi.nlm.nih.gov/articles/PMC4325863/



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