

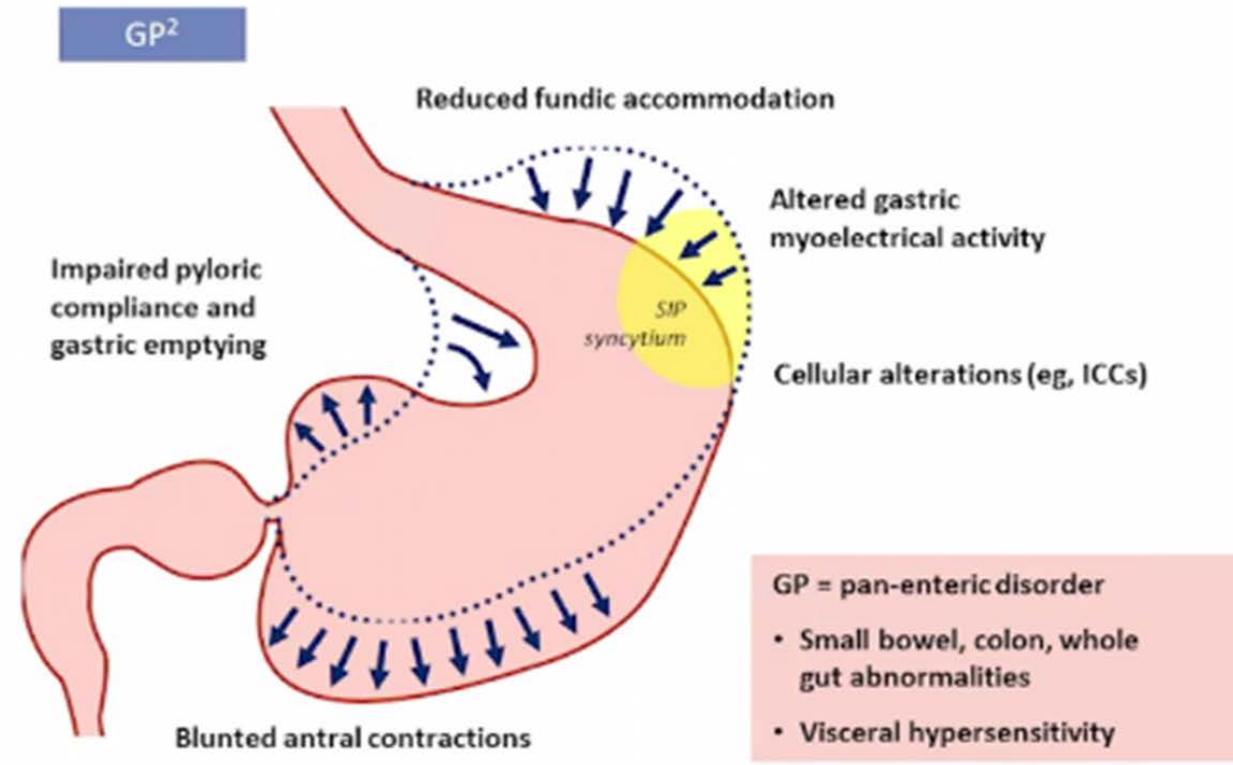
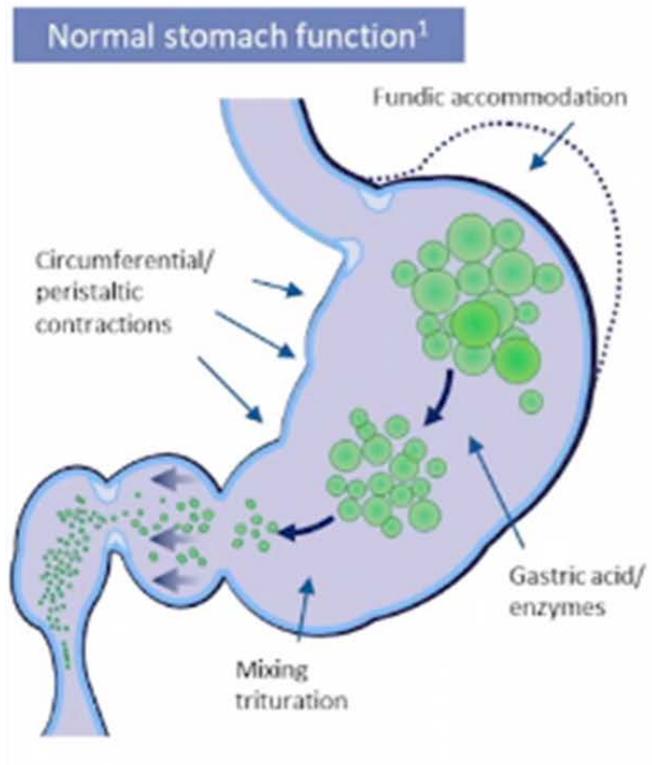
Gastroparesis: Introduction, definition, Burden

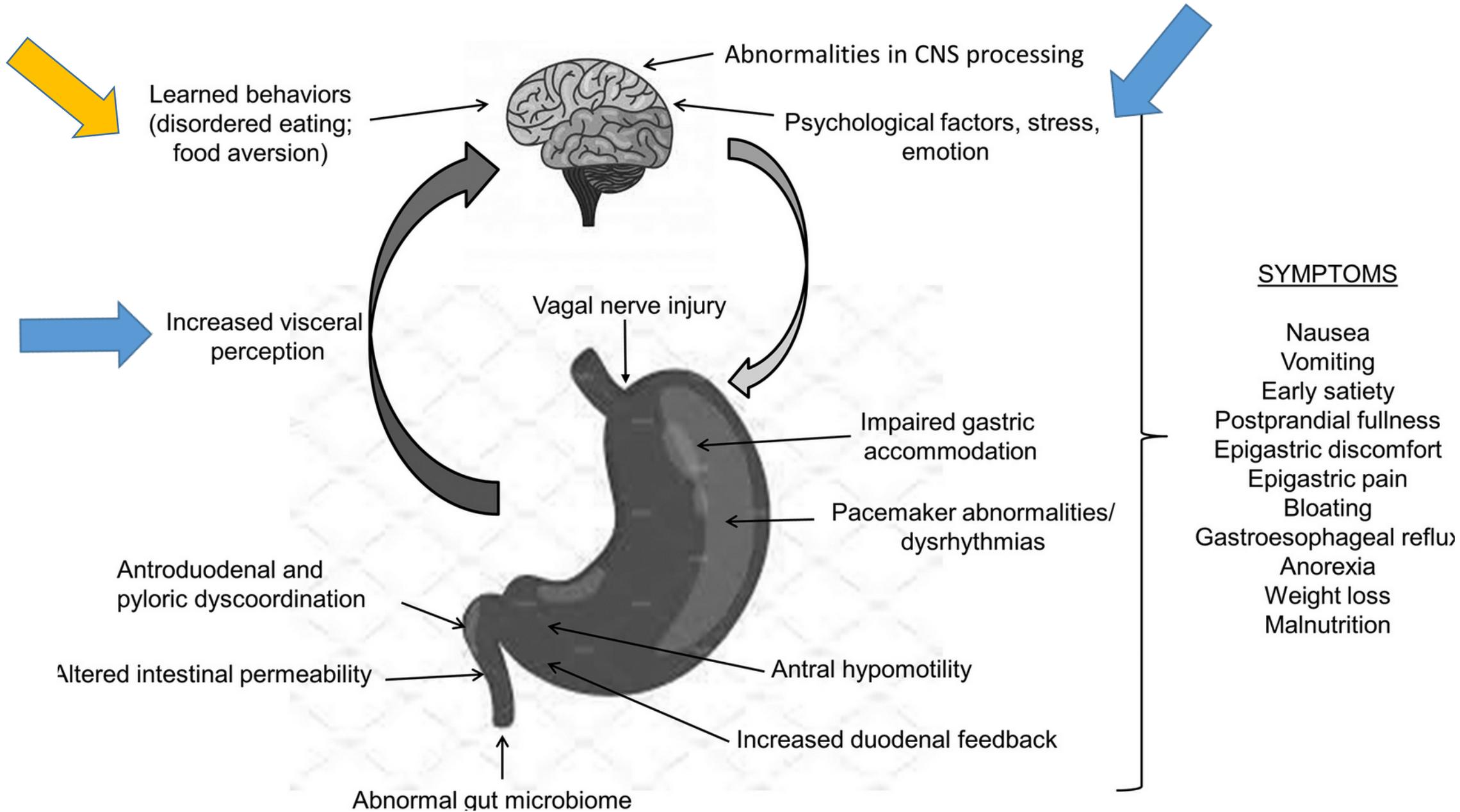
IAGH CME April 14th 2022

Learning objective

- Pathophysiology of GP
- Definition
- Clinical symptoms and differentials
- Etiologic factors

Gastroparesis: Impaired gastric emptying





Gastric Dysmotility: Diabetes

- Oxidative stress: Heme-oxygenase impairment: HEMIN
- GLP-1 Drug-induced: Sitagliptin (DPP4-inh), Liraglutide
- Neuropathic
 - HRV
 - SFN

Gastric Dysmotility: Iatrogenic

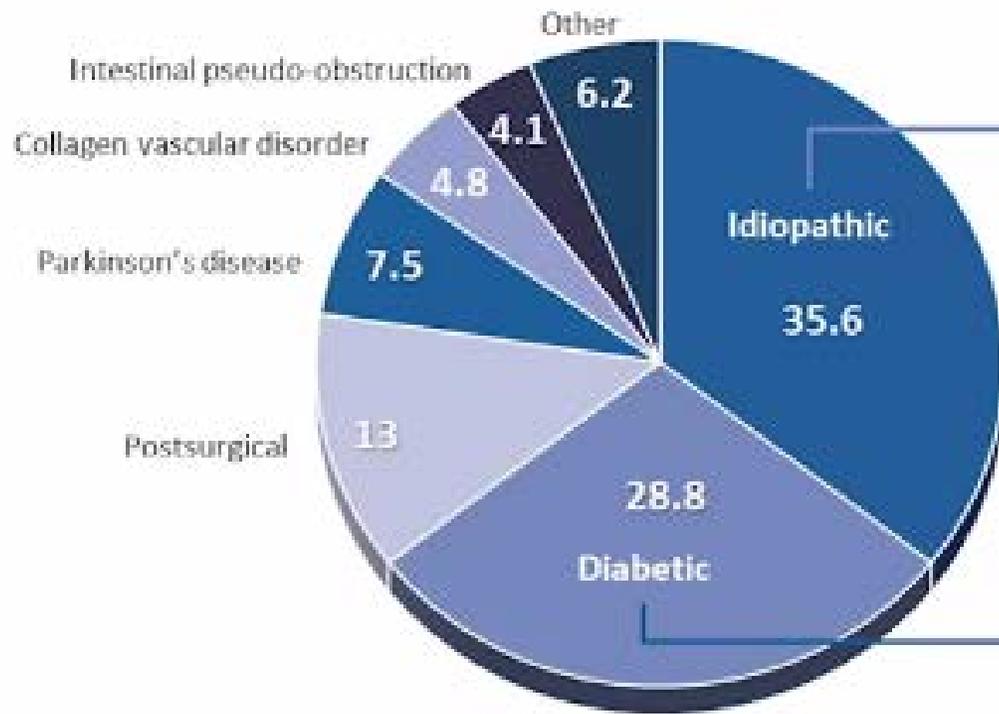
- Postsurgical gastroparesis
- Gastric surgery, Anti-reflux surgery
- Thoracotomy :lung, Esophagectomy

- Achalasia botulinum toxin injection
- Esophageal Varices Sclerotherapy

Gastric Dysmotility: ADR

- Cyclosporin
- Ca-Blocker
- Anticholinergic
 - Antispasmodic
 - TCA
- Narcotics
 - Mu mediated
 - NE mediated

Etiology (US Tertiary Referral)¹



Clinical and objective evidence of GP without a primary identified cause²

- One subset is *postviral*
 - Rapid onset of symptoms after a viral prodromal phase
 - Acute GP symptoms that may improve over the course of a year
- Likely underdiagnosed; possible overlap with functional dyspepsia³

10-year incidence in diabetes⁴

- Type 1: 5.2%
- Type 2: 1.0%
- Controls: 0.2%

Epidemiology



Prevalence of
diagnosed GP



0.014%

(13.8 per 100,000)



0.024%

(24.2 per 100,000)



Percentage of those diagnosed with:
Idiopathic GP Diabetic GP

39.4%

37.5%

49.4%

25.3%



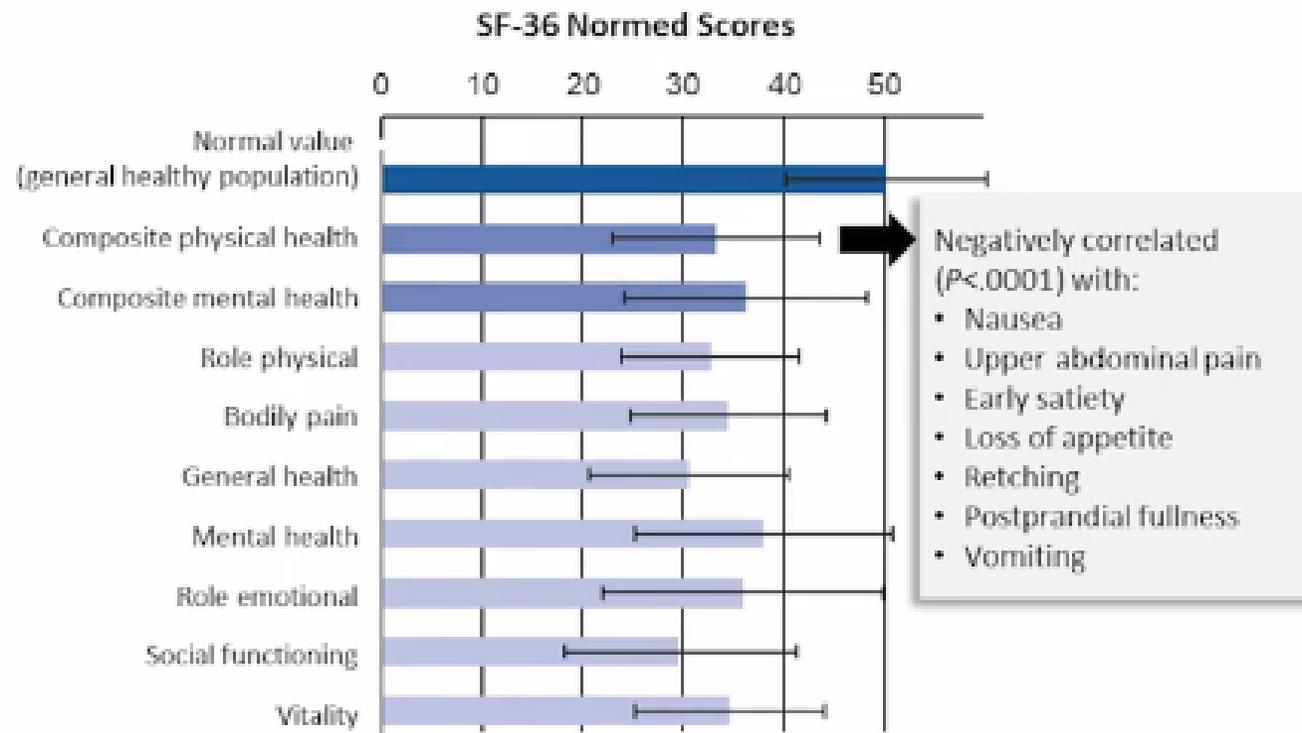
More prevalent
in women

2x

4x

Impact

IFFGD GP survey assessing patient overall physical and mental health (N=1423)¹



US survey evaluating work and daily activities (N=228)²

Respondents reported that GP symptoms led to:

Reduced daily activities	68%
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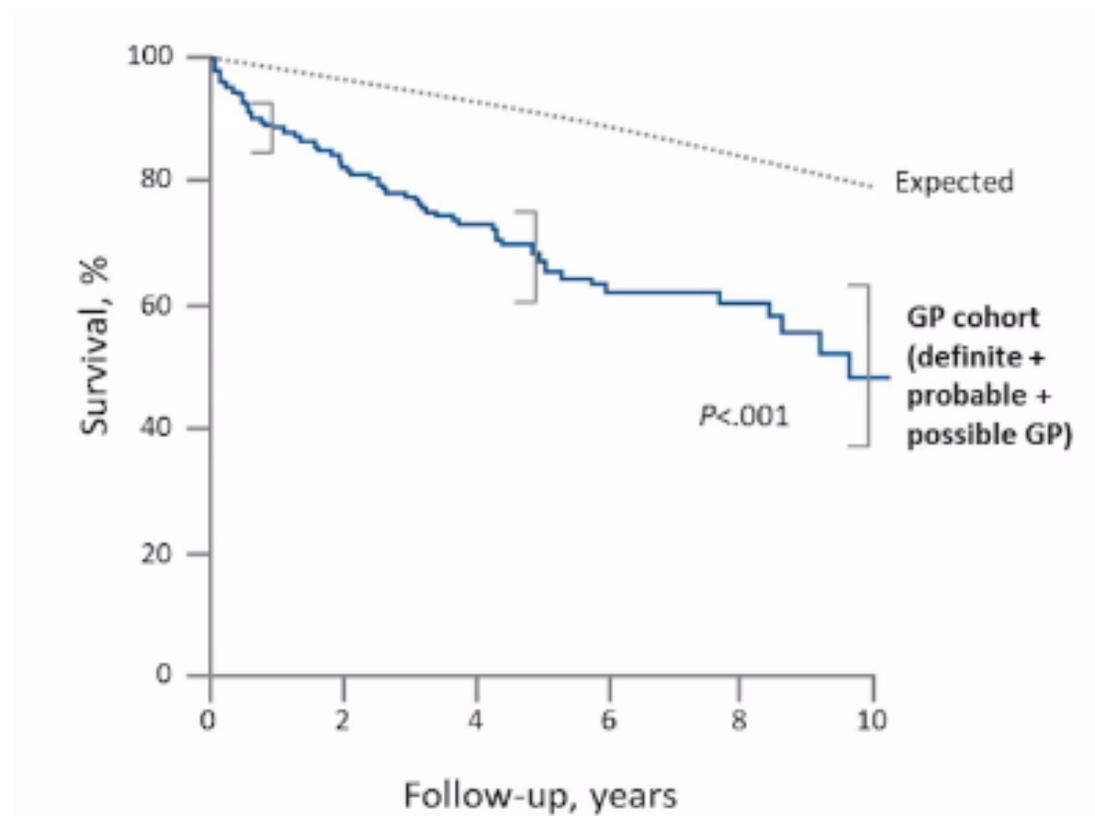
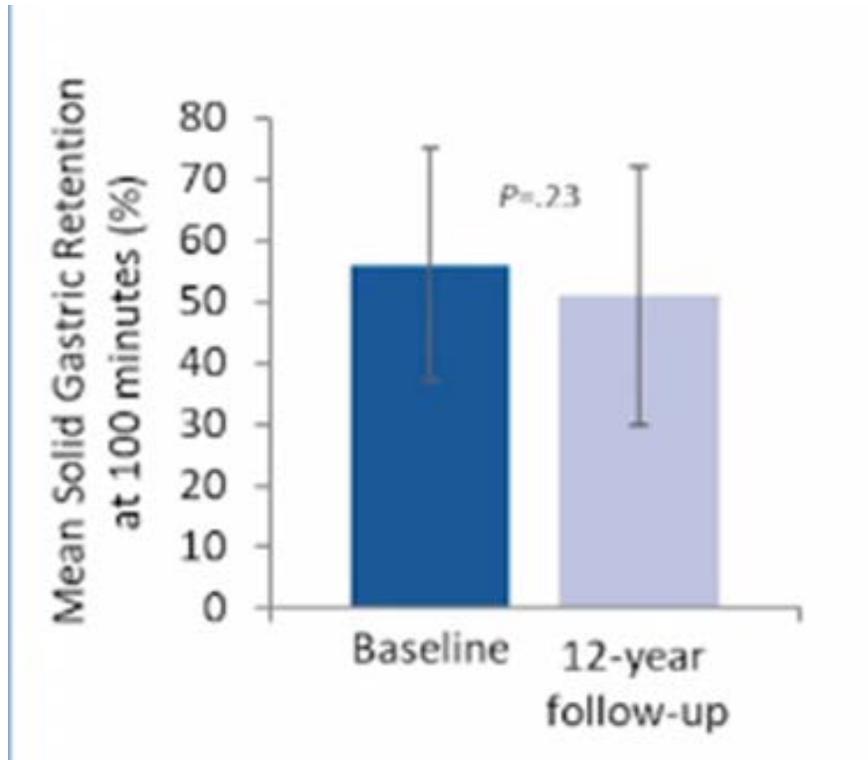
Not working	6%
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Reduced annual income	29%
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Medical disability	11%
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TPN	20%
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Persistent *Disease* in diabetic patients



Healthcare

ED visits

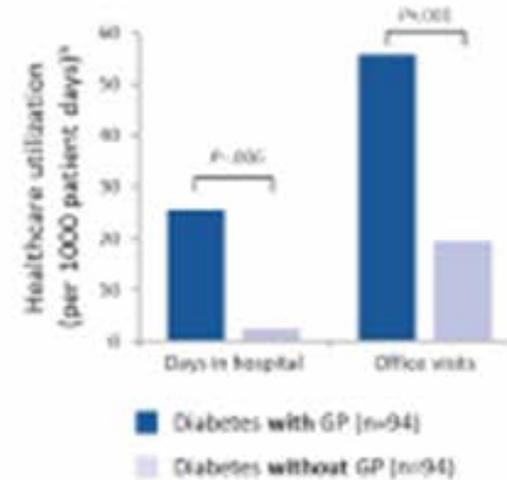
GP as the Primary Diagnosis	
2006	2013
15,459	36,820
+138%	

GP as the Primary Diagnosis Diabetes as the Secondary Diagnosis	
2006	2013
5696	14,114
+148%	

\$592.8 M

GP-related
hospital charges
in 2013

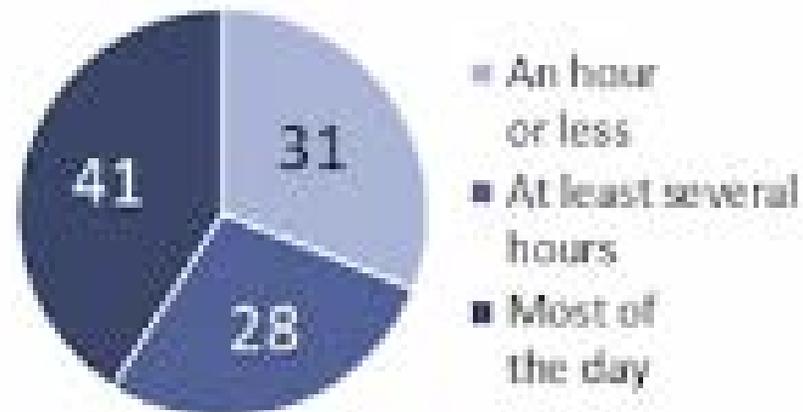
Hospital Admissions Following ED Visits	
GP as the primary diagnosis	-38%
Diabetes as the secondary diagnosis	-42%



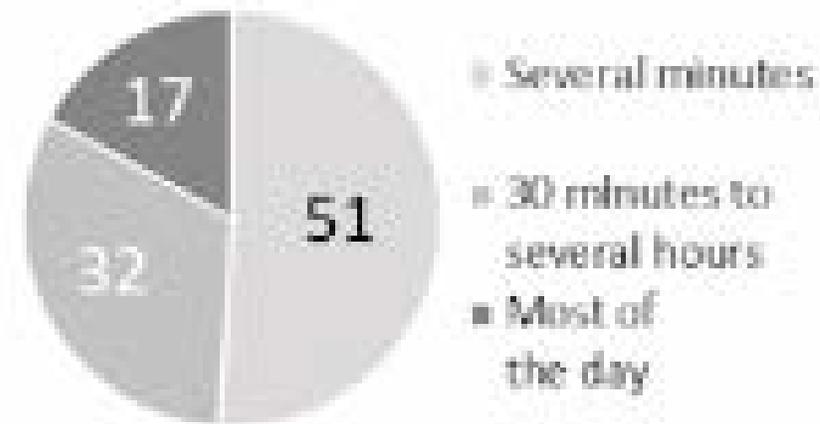
	Functional Dyspepsia	Gastroparesis	Rumination syndrome	Cyclic vomiting syndrome	CNVS
Pain	EPS	Possible			
Fullness	PPDS	Possible			
Nausea	Possible	Present		Episodic	Paroxysmal
Vomiting		Present	No: <i>effortless</i>	Episodic	Paroxysmal
Psychologic factors	Possible	Consequence	Stressful situation	Present	
Medical pathology	Post-infectious	Diabetes, Post surgical , Neurologic disease			

US NIDDK GPCRC Data (N=159)⁴

Characteristics of Nausea, %



Characteristics of Vomiting, %



Endoscopy

- Mandatory
 - Obstruction
 - Pathology
 - Remnant/Bzoar
- ESNM *DID NOT* ENDORSED: The presence of food in fasting state during endoscopy is diagnostic for gastroparesis.

When to request scintigraphy

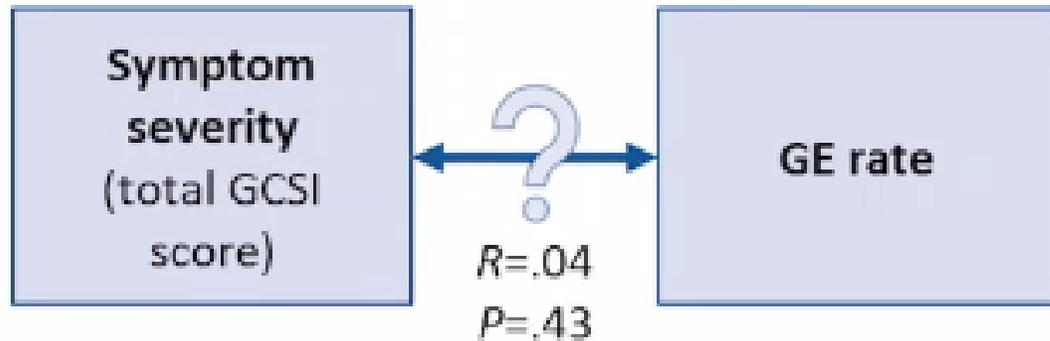
- Severe weight loss or vomiting
- Refractory FD syndrome

Vijayvargiya P, et al. Association between delayed gastric emptying and upper gastrointestinal symptoms: a systematic review and meta-analysis. *Gut*. 2019;68:804-813.

- FBS<200
- 300 Kcal 30% fat meal
- 1-2-4 hrs. ejection fraction
- EF 4 hrs.
 - >10
 - >25
 - **>35%**

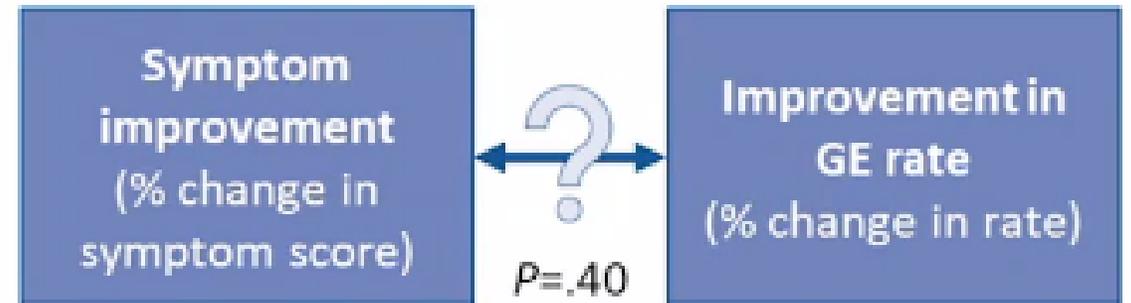
The Correlation Between Gastric Emptying and GP Symptoms is Unclear

No correlation between GP symptom severity and degree of gastric stasis¹

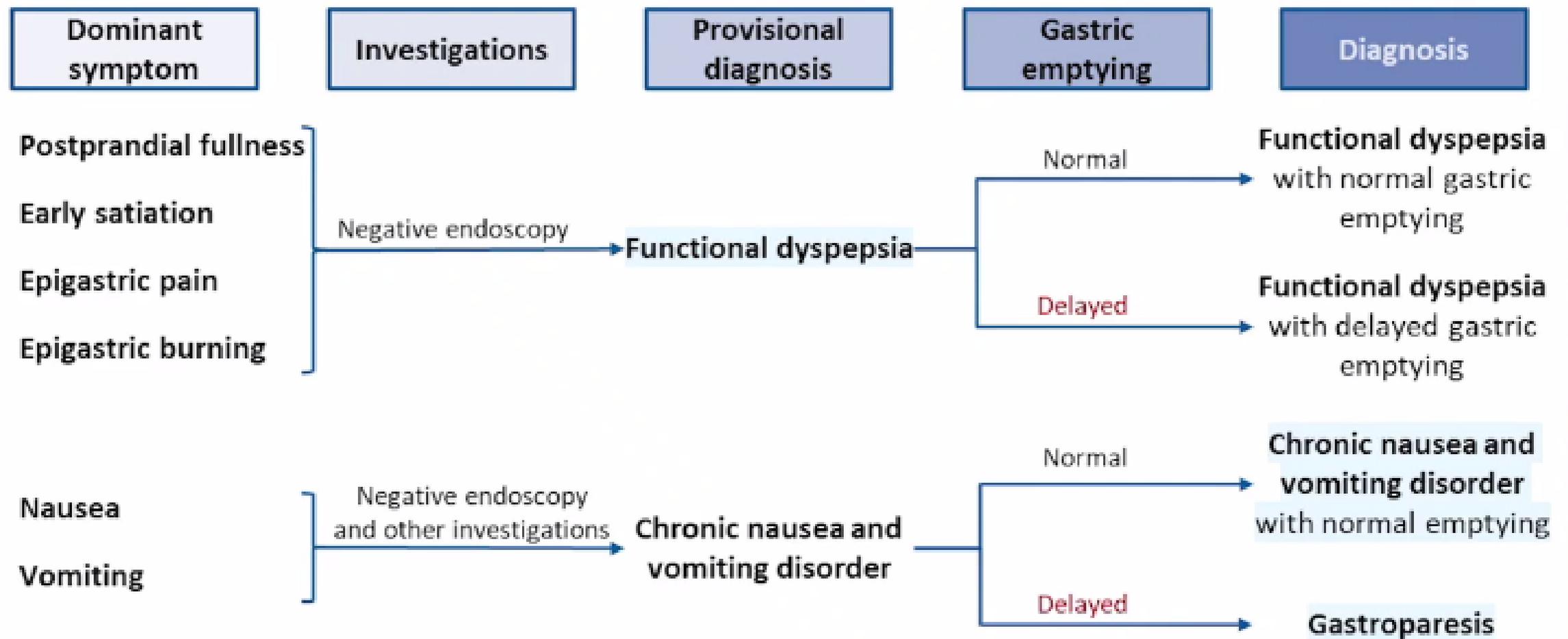


Source: analysis of 319 patients with GP in the NIDDK GPR

No correlation between symptomatic response and improvement in GE²



Source: meta-regression analysis of 34 controlled trials of medications used for treatment of GP



- Results from IFFGD GP survey
- Adult patients with GP (N=1423)

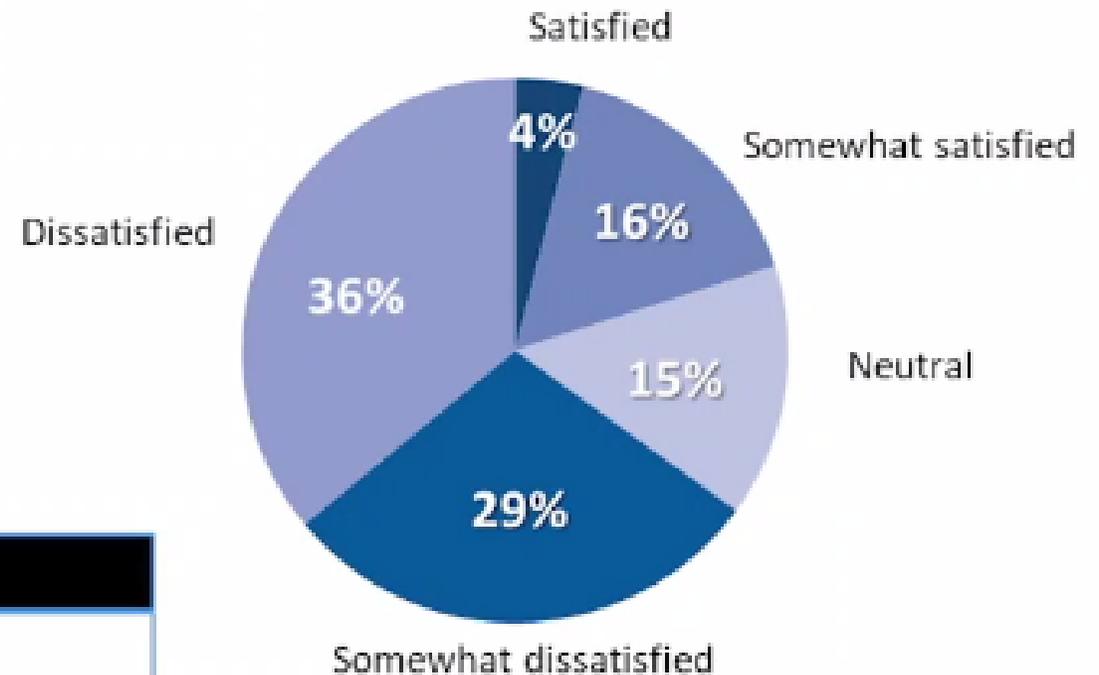
Patients desire improved symptom control, especially for:

- Nausea (21%)
- Stomach pain (20%)
- Vomiting (11%)

Patient-identified unmet needs

- Specific treatments for GP (48%)
- Patient advocate knowledgeable about GP (21%)
- Someone to talk to one-on-one (9%)
- General disease information (6%)

Patient Satisfaction With Available Treatment



Intensive Care

- Feeding intolerance
- Vomiting
- High gastric residual volumes [GRVs] > 250 mL

- ~50% of mechanically ventilated patients.
- Mostly a clinical diagnosis

Refractory Gastroparesis

- persistent symptoms
- objectively confirmed gastric emptying delay
- despite dietary adjustment and metoclopramide (~40 mg/d for 1 month) in absence of opioids, glucagon-like peptide-1 agonists.

Wrap-up

- GP is a pathophysiologic term : **4hrs EF**
- Nausea and vomiting are **core** symptoms
- Idiopathic/PI is the most prevalent form
- GP may increase mortality and reduce QOL
- GP may be defined by GRV in ICU