
Burden of Illness of Visceral Pain

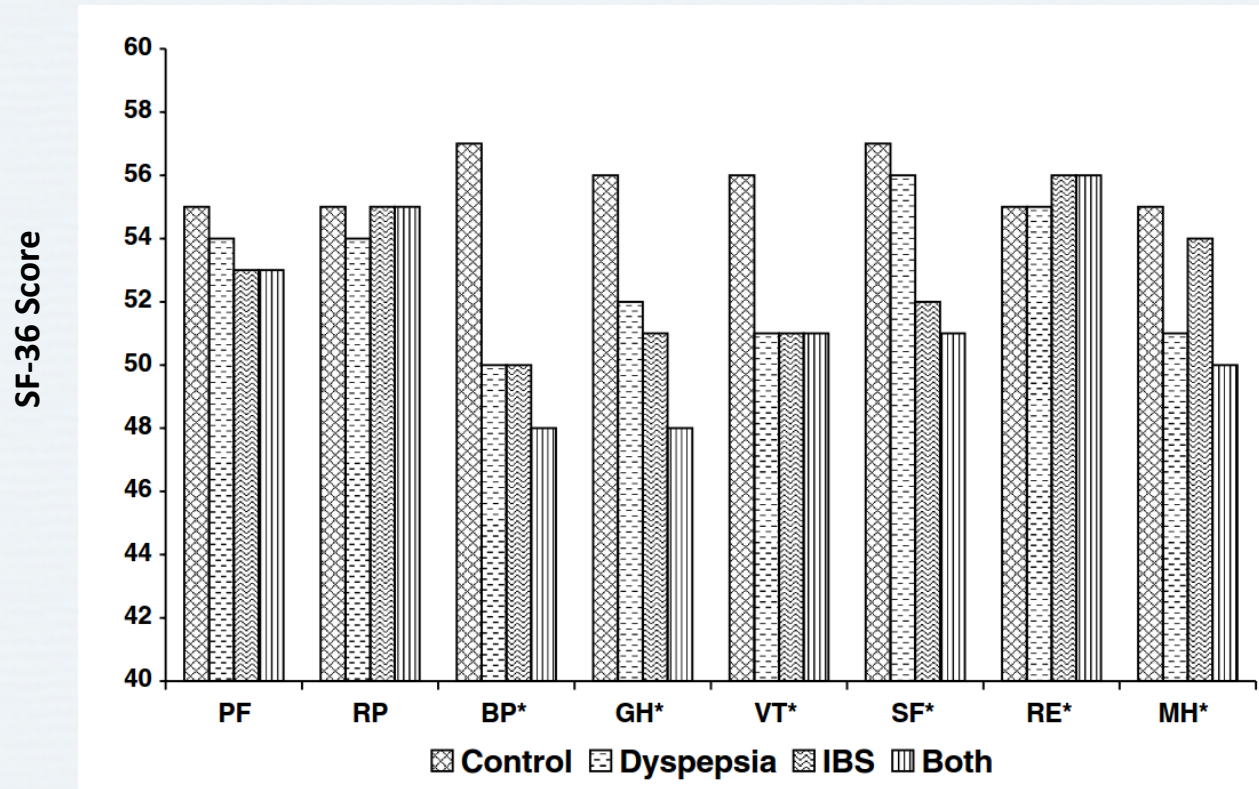


Physical Burden of Visceral Pain

- Pain from internal organs is widespread
- Wide prevalence of organic and functional visceral pain in various medical conditions
- Heavy global burden of visceral pain due to high prevalence of visceral pain conditions:
 - Myocardial ischemia – most frequent cause of cardiac pain
 - Kidney and ureteral stones – one of the most intense forms of pain
 - Irritable bowel syndrome with recurrent attacks of abdominal pain is estimated to affect 25% of the population in many countries
 - 40-50% of all gastroenterologic consultations worldwide
- Dysmenorrhea is estimated to affect 50% of menstruating women
 - 10% being forced to abstain from work for a few days each month
 - $\geq 30\%$ report no improvement with medical treatment

The social burden of visceral pain may surpass that from somatic sources

Impact of Functional GI Disorders on HR QoL



HR QoL is impaired in subjects with IBS and dyspepsia, but much of this association can be explained by psychological factors

*p<0.01

BP = bodily pain; GH = general health perceptions; GI = gastrointestinal; HR QoL = health-related quality of life; IBS = irritable bowel syndrome; MH = mental health; PF = physical functioning; RE = role functioning – emotional; RP = role functioning – physical; SF = social functioning; SF-36 = Medical Outcomes Study 36-item short form health survey; VT = vitality

Halder SL *et al. Aliment Pharmacol Ther.* 2004;19(2):233-42.

Psychological Aspects of Functional GI Disorders

- Patients with dyspepsia report more life stress and psychological distress than healthy controls¹
- Patients with IBS have a higher prevalence of psychological distress, major depression, somatization, hypochondriasis, and anxiety than healthy controls¹
- Psychological well-being may be a risk factor for development of functional gastric disorders and may be markedly affected as a consequence of severe GI symptoms¹
- Patients with IBS or dyspepsia have significant psychological comorbidity
- Psychological comorbidity significantly impacts QoL
- Studies have shown that patients with functional GI disorders who seek treatment are different than those who do not seek treatment
 - Do non-consulters have impaired QoL?
 - Is impairment of QoL only a manifestation of persons' psychological state?

Important to determine the role of psychology in QoL issues. In treating these patients, should emphasis be on treating GI disturbance or on their mental health?

Impact of Psychological Morbidity on Treatment of Patients with Visceral Pain

- Understanding of psychological morbidity of patients with visceral pain is crucial to optimal management
- It is unknown how much of the comorbidity is cause and effect
- Recognition of the relationship has not always benefited the patient
 - Stigmatization (“all in the head”)
 - Dismissal of patients’ suffering
 - Lack of organized approach to drug development

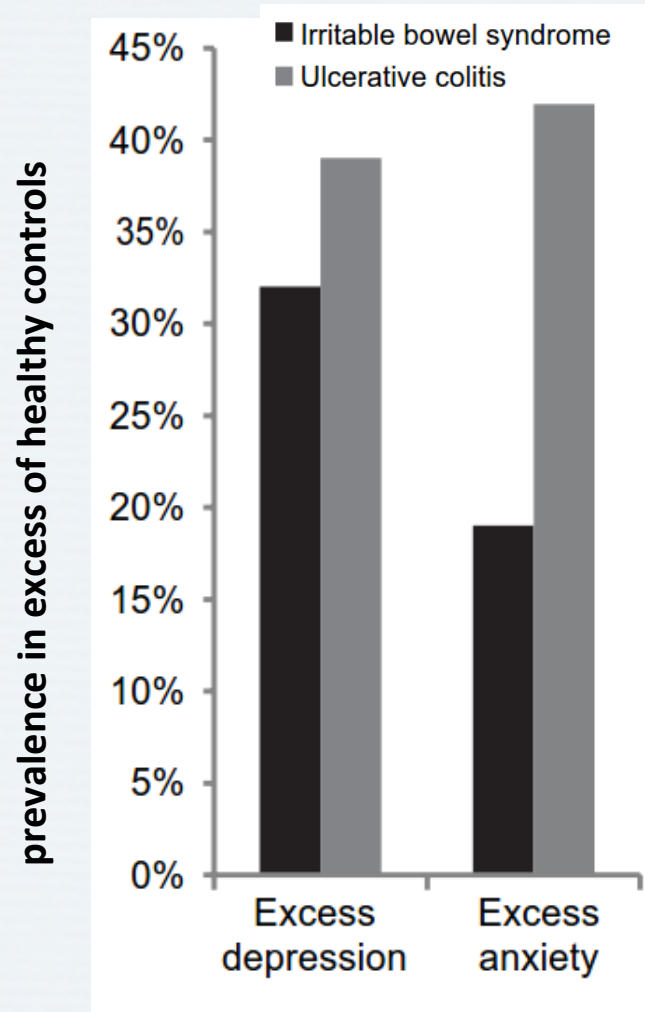
Questions remain about the complex relationship between the “big brain” in the head and the “little brain” in the gut and how pathology in one can lead to changes in the other

Economic Impact of Visceral Pain

- Estimated yearly costs
 - Abdominal pain (UK) : >£100 million (\$151 million US)
 - Non-cardiac chest pain (Australia): AUS \$300 million (\$242 million US)
 - Persistent pelvic pain (UK): £158 million (\$239 million US)
 - Irritable bowel syndrome (US) \$40 billion

Some visceral pain disorders are not life-threatening but are still very costly and significantly negatively impact patients' lives with psychological distress, disturbance of work and sleep and sexual dysfunction

Psychological Disorders in GI Disease



Prevalence of depression and anxiety in IBS (functional visceral pain) and ulcerative colitis (organic visceral pain) is higher than in healthy control subjects¹

Psychological comorbidity is common in patients with functional pain, whether functional or visceral²

IBS, Anxiety, and Depression

- 40 to 60% of patients with IBS who seek medical advice have psychological symptoms of depression or anxiety – or both¹
- Very recent study showed a link between depression and abnormal brain response to visceral pain in patients with IBS²
 - Clear evidence that patients with IBS process pain signals from gut abnormally²
 - Disturbed brain responses to pain are especially pronounced in patients with more symptoms of depression²
- Study showed **depression** – but not anxiety – is a contributing factor²
- Patients with IBS less able to suppress pain signals in the brain coming from bowel²
 - Depression plays a role²
 - Affective disorders may contribute to development or maintenance of disturbed pain processing in IBS²
- Depressed patients showed a deficiency (vs. healthy controls) in central pain inhibitory mechanisms in IBS²
 - Higher depression scores (Hospital Anxiety and Depression Scale; HADS) associated with reduced central pain processing²

IBS = irritable bowel syndrome

1. Farthing MJ. *BMJ*. 1995;310(6973):171-5; 2. New study finds link between depression and abnormal brain response to visceral pain in patients with IBS. 2 October 2014. Available at: http://www.ueg.eu/fileadmin/user_upload/documents/Press/UEG_Week_2014_-_Press_Releases/Neurogastroenterology.Specialist/UK_UEG_Week_-_Neurogastroenterology_PressRelease.pdf. Accessed 13 January, 2015.

Burden of IBS

- Characterized by a multiple symptom complex of abdominal pain or discomfort and altered bowel habits (constipation, diarrhea, or both in alternation)
- Chronic, episodic, and bothersome symptoms
 - Symptom severity waxes and wanes; symptom flares are common
- Profound negative impact on quality of life
 - Sleep
 - Personal relationships
 - Travel
 - Diet
 - Sexual functioning

Patients with IBS have a poorer HRQoL than patients with chronic conditions such as asthma, migraine, and GERD

Economic Burden of IBS

- Total costs are comparable to or greater than those associated with asthma, hypertension, and chronic heart failure
- Costs for patients with IBS are about 50% higher than for population controls

Burden of Endometriosis

- Pain
- Chronic pelvic pain
- Impaired psychological functioning
- Reduced social functioning
- Infertility

Quality-adjusted life years per women = 0.809

Economic Burden of Endometriosis

- Economic burden is similar to that associated with diabetes, Crohn's disease, or rheumatoid arthritis
- Societal costs are considerable but poorly defined
- Indirect costs of loss of productivity
 - Double those of direct costs
 - Similar to those for ankylosing spondylitis, rheumatoid arthritis

Burden of Interstitial Cystitis

- Frequent urination
- Bladder pain
- Decreased physical functioning
- Decreased ability to function in normal role
- Decreased vitality
- Decreased social functioning
- Decreased sexual functioning

Quality of life of patients with interstitial cystitis is poorer than that of patients undergoing dialysis for ESRD

Economic Burden of Interstitial Cystitis (IC)

- Costly disease associated with a number of comorbidities
- Direct costs 130% higher for patients with IC than patients without IC
- Indirect costs 84% higher for patients with IC than patients without IC
- Direct costs higher than for arthritis and back and neck disorders

Burden of Vulvodynia

- Chronic vulvar discomfort
- Common descriptors:
 - Itching
 - Burning
 - Periodic knife-like or sharp pain
 - Excessive pain on contact to the genital area
- Compromises ability of sufferers to enjoy life
- Quality of life is lower than in kidney transplant recipients

Many women with vulvodynia feel out of control of their lives, and vulvodynia has a severe negative impact on their sex lives

Vulvodynia: Factors Affecting Pain

Factors that Exacerbate Pain

- Intercourse
- Tight clothes
- Partner touch
- Riding a bicycle
- Use of tampons
- Prolonged sitting

Factors that Relieve Pain

- Loose clothing
- Not wearing underwear
- Applying ice to the area
- Being distracted
- Lying down

Economic Burden of Vulvodynia

- Annual U.S. burden: \$31-72 billion (USD)
 - Direct costs: 68%
 - Indirect costs: 26%
 - Direct non-healthcare costs: 6%

Comorbidities of IBS

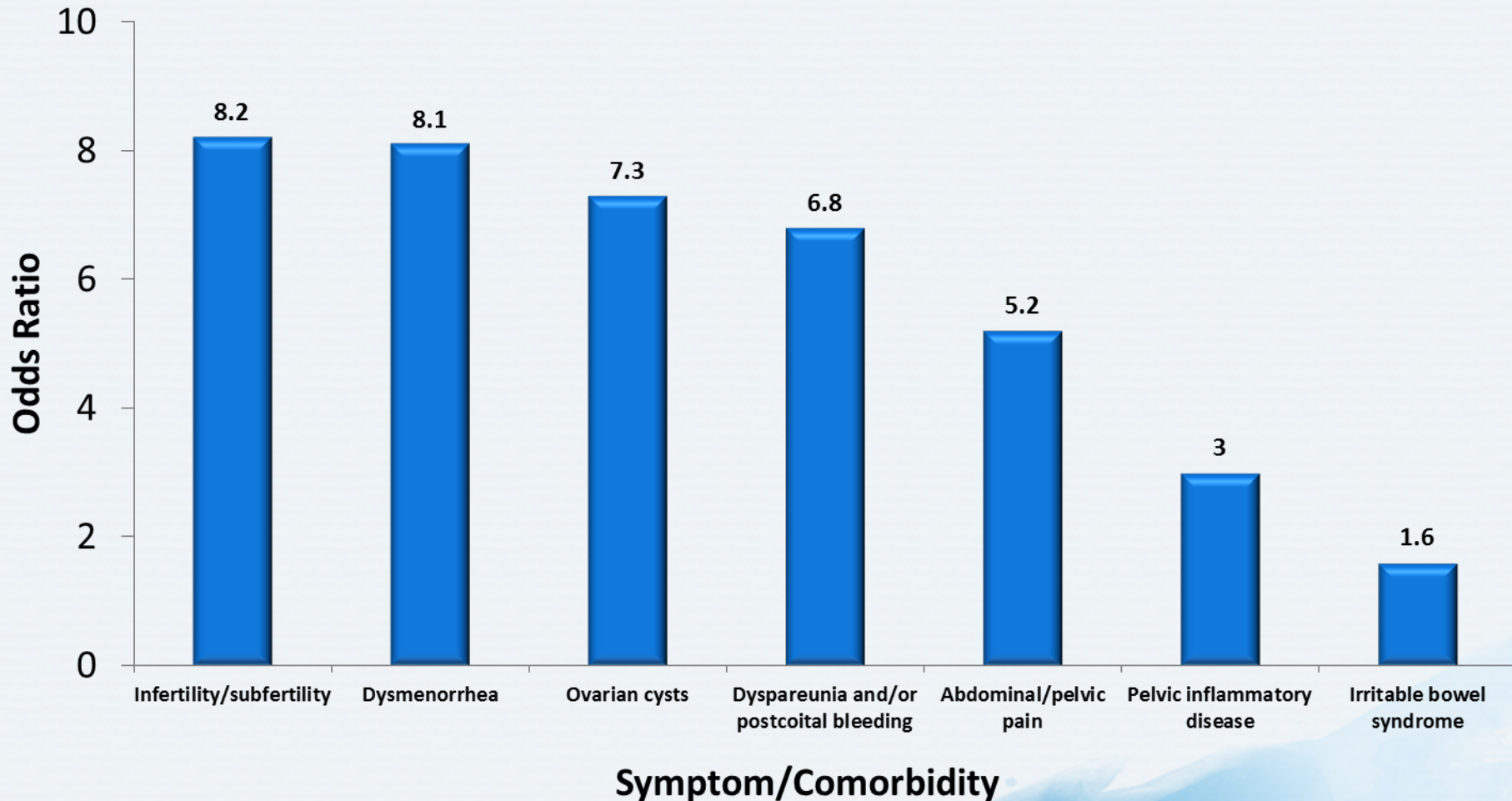
- Celiac disease
- Functional dyspepsia
- GERD
- Fibromyalgia
- Chronic fatigue syndrome
- Depression
- GAD

Common Disorders Associated with IBS

Overlapping GI Disorders	Associated Non-GI Disorders
<ul style="list-style-type: none">• Gastroesophageal reflux• Functional dyspepsia• Lactose intolerance• Fructose intolerance	<ul style="list-style-type: none">• Fibromyalgia• Chronic fatigue syndrome• Migraines• TMJ syndrome• Interstitial cystitis• Dyspareunia

Presence of overlapping disorders commonly associated with IBS increases probability that IBS is the correct diagnosis

Comorbidities of Endometriosis



Comorbidities of Interstitial Cystitis (IC)

- Hypertension
- Congestive heart failure
- Cardiac arrhythmias
- Blood loss anemia
- Peripheral vascular disorders
- Stroke
- Ischemic heart disease
- Hyperlipidemia
- Hepatitis B or C
- Migraines/headaches
- Parkinson's disease
- Systemic lupus erythematosus
- Ankylosing spondylitis
- Allergies
- Pulmonary circulation disorders
- Chronic pulmonary disease
- Diabetes
- Hypothyroidism
- Renal failure
- Fluid and electrolyte disorders
- Liver diseases
- Peptic ulcer
- Deficiency anemias
- Depressive disorder
- Psychoses
- Alcohol/drug abuse
- Asthma
- Fibromyalgia

Comorbidities of Vulvodynia

- Psychological distress
- Fibromyalgia
- Irritable bowel syndrome
- Repeated yeast infections
- Chronic fatigue syndrome
- Dyspareunia
- Interstitial cystitis

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